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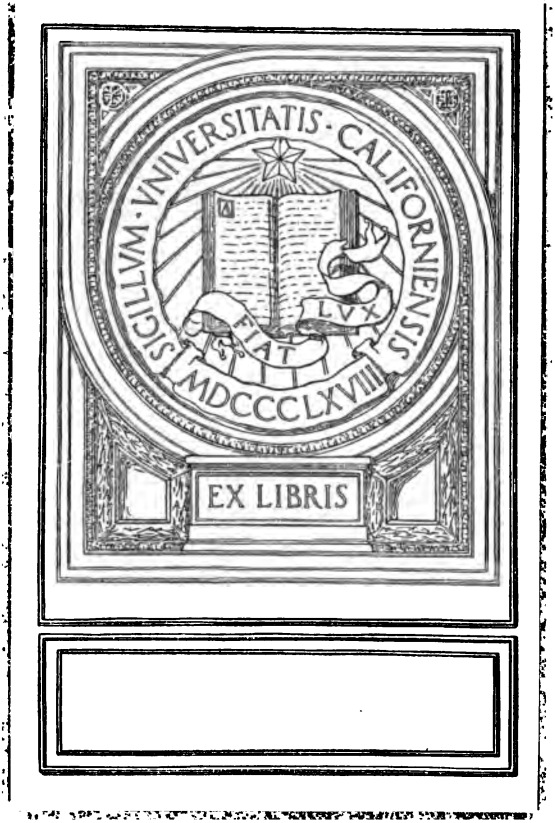

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Gold Production and Future Prices

An Inquiry Into the Increased Production of Gold and Other Causes of Price Changes with a View to Determining the Future of Prices

BY

HARRISON H. BRACE, LL. M.

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INTRODUCTION

THE scholar in his study—the book-worm poring over musty volumes of prices and statistics, can point out to the practical business man methods whereby he can increase his profits. The very fact that the business man looks so carefully after the details of his business, prevents him from seeing the broad tendencies of commerce. If he would give some attention to the underlying principles on which business is based, it would increase the effectiveness of his work and of his management.

If the business man would consult the scholar in reference to the general movements of prices and commerce, and if the scholar would consult the practical business man in regard to any actual transactions he may make, it would be to the material benefit of each of them.

THE NATURE OF THE INQUIRY

There are general principles which govern prices causing tremendous swells of price movements—advancing or declining tendencies which last for years affecting, to some extent, all prices. But on the surface of this swelling tide are numerous waves and depressions of price movements caused by all the things which go to further production, to consume its products, or to retard it,—especially those things which go to make or unmake the confidence which is among the most important of all business conditions.

The most effective of the general influences which underlie the great swells of price movements is the cost of producing gold as compared with the cost of producing all other commodities; while the waves and depressions which cover the surface are the alternate action and reaction of trade conditions or price making factors which affect only single commodities or groups of commodities.

COMPLICATIONS

The inquiry is thus seen to be a complicated one; and the economist is seldom able to isolate the different phenomena of prices. The only method is to examine the principal factors which may influence the result; and, by making due allowance for those factors which are of minor importance, to bring out clearly the great determining causes of price movements and form some opinion as to which of them will be most potent in the future.

Prices among the principal commercial nations are measured in gold. Gold is the yard-stick of the financial world. But, though it be the yard-stick of values, its value is never absolutely stable; but it is always fluctuating. Its fluctuations are not rapid, of course, else it would never have been selected as a standard. Nevertheless, contrary to the opinion of the average business man, the value of gold is always changing in the same way as that of any other commodity. There is no commodity whose value remains always the same.

✓

The exchange value of gold is determined the same as that of any other commodity, by its demand and supply. But the principal reason why it is comparatively so stable in value is because there is such a large stock of it in existence. The loss of gold from all causes combined is very small. The old coins and jewelry are continually being melted in the mints and work-shops of the world, and the same stock is being used over and over again. Hence it is that fashions may change and gold be used to a greater or lesser degree industrially; nations may increase or decrease their gold coinage, but the value of the precious metal will remain nearly constant.

Nevertheless, as before stated and contrary to popular opinion, there are changes in the purchasing power of gold. In the course of years they amount to a great deal; and it is to these gradual, but important, changes in value that we are about to address ourselves.

GOLD PRODUCTION AND FUTURE PRICES

CHAPTER I

THE HISTORICAL PROOF

AMONG THE ANCIENTS

IN olden times little attention was paid to business; and there are no reliable or comprehensive statistics of the production and use of the precious metals. What side-lights are thrown upon financial questions by classical writers give few lessons applicable to present-day conditions. The production of gold, for instance, was not conducted for profit by business men; but was carried on by a king or great magnate, principally by slave labor. Still there was commerce in those days; the precious metals circulated from hand to hand; and the prices of commodities must have been determined by the general principles of value.

THE EDICT OF DIOCLETIAN

One of the most important records of ancient prices is found in the edict of Diocletian, fixing maximum prices in the year 301 A. D. These prices have been reduced to modern money by the writer of the article upon the History of

Prices in Palgrave's Dictionary of Political Economy. A few sample prices follow:

Rye, per bushel	27½d.
Oats, " "	14d.
Peas, " "	27½d.
Salt, " "	5d.
Pork, per lb	3½d.
Beef, " "	2½d.
Butter " "	5d.
Goose, each	22d.

Reference is made to this edict of Diocletian because it is the only ancient record of prices which is capable of being used as a comparison with the more accurate records of later times. Keeping this record in mind as we go on, we shall find that prices have been lower on many occasions since that date; and on many occasions they have been higher. But considering the numerous fluctuations in business and methods of production, it is remarkable that a record should have been preserved that is capable of any comparison with the price records of modern times. As compared with present values these ancient prices appear low. But not many years ago some of them would have appeared high. The method of measuring prices by the value of a standard metal may seem primitive to some persons. But it is remarkable that variations in the standard are so small compared with the variations of prices between the different commodities measured. Any change in the relative value of the standard as compared with other commodities is a most gradual one and is always broken by numerous reactions.

THE ROMAN SYSTEM

The system of mining gold which obtained at the time of the Roman Republic was extremely wasteful. The mines were farmed out to court favorites and each farmer or lessee was careful to get the fullest amount of the metal from his mine during the time of his lease, regardless of the interests of succeeding farmers. Under the Roman Empire the government assumed charge of the mines and worked them for government account. The methods used, however, were still extremely wasteful, and production gradually diminished till at about the close of the fifth century it appears to have nearly ceased. To quote from that eminent authority, William Jacob: "In this period, from about 480 to 670 or 680, the greatest diligence has been able to discover no trace, in any author, of the operations of mining having been carried on." [1]And he estimates that between 14 A. D. and the year 806 there was an actual decline in the stock of the precious metals from £358,000,000 in the former year to £33,674,256 in the latter.[2]

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[1] Jacob, Precious Metals, Vol. I, p. 236.

THE MIDDLE AGES

With the Saracen conquests in the eighth century we find some increase in supplies. Later there was further increase from Austria, Hungary, and elsewhere; but only enough, according to Mr. Jacob, to make good the loss from abrasion or otherwise. This condition prevails for the next seven hundred years. The confusion, wars, tumults and general business ineptitude, were sufficient to cut short amazingly the production of the precious metals.

It is of course true that commodities at that time were also difficult to produce. But the greatest difficulty appears to have been in the production of the precious metals. And the effect of this condition is shown in the general price level of commodities. For instance, we have the following table of prices in England in the reign of Ethelred, about the year 997, taken from Wilkins' Leges Saxon and quoted by Mr. Jacob:[3]

---

[2] Jacob, Precious Metals, Vol. I, pp. 225-237.

[3] Ibid, Vol. I, p. 315.

Price of a man or slave	2	16	3	sterling
a horse	1	15	2	
a mare or colt	1	3	5	
an ass or mule	0	14	1	
an ox	0	7	0½	
a cow	0	6	2	
a swine	0	1	10½	
a sheep	0	1	2	
a goat	0	0	4½	

The conditions prevailing during the latter part of the Roman era and during the Middle Ages are the best indications of the connection between the prices of commodities and the production of the precious metals. It might appear at first blush that wars, tumults and civil strife would make the production of commodities in general so difficult that their price would be high. On the contrary, they are very cheap. What can account for it except that gold also was difficult to obtain, and that the gold industry suffered relatively more than the others?

THE DAWN OF THE MODERN AGE

But as modern commerce in its nascent state was just beginning to indicate that growth which was to reach such extraordinary development in later centuries, it was natural that the search for gold should be one of the directions in which the modern spirit should manifest itself. When Columbus therefore appeared before Ferdinand and Isabella with his dream of a shorter route to India, it was to be expected that one of the subjects discussed was the fabled wealth of the Orient in silver and gold.

And, as Adam Smith points out, when the countries that Columbus actually did discover failed to yield the rich products that he had expected, he naturally paid greater and greater attention to what gold and silver he did notice and encouraged the search for mines of the precious metals. And so, throughout all the voyages of Columbus and his followers, they sought after gold and silver with that terrible earnestness and fascination which characterize the search for the precious metals.

MEXICO AND PERU

The hopes of Columbus and his immediate followers were doomed to disappointment; and they brought back little, either of gold or silver, to the court of their royal masters. His later followers, however, met with better success. The conquest of Mexico by Cortez in 1519 and the subjugation of Peru by Pizarro in 1539 brought to the Spaniards as spoils of war the treasure of precious metals which the natives of those countries had accumulated.

The Spaniards took possession of the mines and improved the methods of production. In 1546 the mines of Potosi were opened. These mines proved to be singularly productive, and their discovery marks an important date in the history of the precious metals. A continual stream of silver and gold now flowed into Spain and from thence into other parts of Europe and the world.

Recurring again to the authority of Mr. Jacob, we find that he estimates that in the fifty-four years from the discovery of Potosi to the close of the century the aggregate production was about £121,000,000, as compared with a stock on hand of fifty millions sterling in 1546.[4]

The total stock of gold and silver at the close of the sixteenth century he estimates at a value of one hundred and fifty-five millions sterling, or nearly five times as large as in 1492, when America was discovered.[5]

EFFECTS OF THE AMERICAN SUPPLIES

This enormous increase in the production of the precious metals consisted principally of silver; but silver at that time was used as a standard of value, and hence the effect upon prices should be noted by the economist. The inquiry is attended by a great deal of difficulty. For instance, expert investigators are not fully agreed as to whether, in the price records coming to us from that date, the measurement is by weight or by tale. The debasement of the coinage by Henry VIII and other European monarchs brings confusion upon records that might otherwise throw a great deal of light upon the subject. The new supplies did not arrive in Europe in sufficient quantity to affect prices till about 1570; and any rise in prices before that date is doubtless due to the debasement of the coinage just mentioned and to other causes. But from 1570 to 1640 we have a steady rise in the prices of commodities which should be attributed to the new silver from the mines.

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[4] Jacob, Precious Metals, Vol. II, p. 62.

[5] Ibid, Vol. II, p. 63.

Adam Smith, who uses corn in comparing the value of silver in different periods, finds that from 1570 to 1640 it rose in value from two ounces the quarter to six or eight.[6]

The following table, which consists of prices selected from the averages of Thorold Rogers, shows the remarkable advance:[7]

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[6] Wealth of Nations, Book I, Ch. XI, Part III.

[7] History of Agriculture and Prices, by Rev. J. E. Thorold Rogers, Vol. V, Ch. XXVI.

	1541-1582		1583-1642		
	s.	d.	s.	d.	Rise
Wheat	13	10½	36	1	2.6084
Barley	8	5¾	19	9¾	2.3538
Oats	5	5½	12	5	2.2748
Beef	1	7	2	5½	1.5526
Sheep	6	4	13	10	2.1842
Salt	10	10¾	14	6	1.3308
Candles	2	7½	4	2¾	1.6111
Iron	26	2¾	33	11¼	1.2893

Notwithstanding the difficulty in interpreting the conditions at that time, the increase of production of the precious metals was so great and the arrival of those metals in Europe was so promptly followed by an important rise in the price of commodities, that the instance has become a celebrated one and is often referred to. Adam Smith, in discussing this period, even goes so far as to say that there has never been any dispute about the fact or the cause of it.

In the case of other periods of great production of the precious metals we shall soon find that the advance in prices was not as great or long continued as in this period. And it will be necessary to note the circumstances which were peculiar to this time. The period was one in which the darkness of the middle ages was being succeeded by the light of modern civilization. But the order and system of the modern business world had by no means been developed. Militarism was giving way to commercialism. But the change, like all evolutionary changes, was gradual. As one reads the accounts of the exploring and commercial voyages of that time, he is struck with the fact that they are not like modern scientific exploring expeditions or modern commerce. They more closely resemble romances in which there are adventurous knights and robber barons. And many of these expeditions are strongly tinctured with buccaneering.

The conditions which the Europeans found on arriving in America, and the manner in which they conducted themselves after their arrival, are quite different from the modern way. The following from Thorold Rogers brings to mind some of these peculiar circumstances:—

"The vast increase in the supply of the precious metals was peculiar and unprecedented. The conquerors of those American regions in which these metals are produced in such enormous comparative quantities, found them already smelted, refined and available for exportation. When these resources were exhausted, there was a large population to fall back on, already familiar with mining operations, whom the Spaniards exterminated by compulsory and rigorous labor.

The value of the precious metals must fall (as that of every commodity must fall), if no labor or little labor is given in exchange for them."[8]

Looking at the question from another standpoint, the world which received the new supplies at that time was different from our modern world of commerce. It was noted, for instance, that the effect upon prices was only in a comparatively few localities in the channels of commerce and that many remote districts were scarcely affected.[9]

"The modern world was then comparatively young and unsophisticated. The organization of trade was simple. The relation of the precious metals to prices was, by contrast with later elaborations of credit and banking, direct. The addition to the supplies was at once enormous and rapid. The stock of the precious metals existing in the world was admittedly small."[10]

It is undoubtedly due to the simple organization of commerce and the other conditions peculiar to the time that the effects in this instance are so striking. However, the economic phenomena observed go far to prove the connection between prices and the production of the precious metals.

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[8] Journal of Statistical Society, Vol. 24, p. 549.

[9] Cf. T. E. Cliffe Leslie in Macmillan's Magazine, August, 1864.

[10] Money and Its Relations to Prices, by L. L. Price, p. 86.

THE PERIOD FROM 1640 TO 1789

The action of prices during the period as described by Adam Smith and other writers shows the effects of the latter part of a stream of the precious metals from the mines. The movement of prices was individual, not general. The ratio of the values of the precious metals to one another varied, and there were variations in the prices of individual commodities and of groups of commodities.

As regards general prices there appears to have been a gradual rise between 1640 and the beginning of the eighteenth century.[11] Afterwards the tendency appears to have been slightly downward. It is not necessary to enter in this place into a discussion of the controverted points which distinguish the writings of the economic specialists who have investigated this period—as, for instance, the effect of the civil war in England between parliament and king, or of the corn bounty granted in 1688. In reality there is substantial agreement that the fluctuations of prices between 1640 and 1789 were unimportant.

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[11] Cf. Rogers, Agriculture and Prices, Vol. V, p. 797.

As regards the production of the precious metals at this period, we find that it more than kept up, there being a continuous increase. For instance, in the eighteenth century the production was more than double that of the seventeenth century. But important influences and tendencies were coming into action which will be referred to later in this essay. There was a great increase in commerce; and the unprecedented production of the mines had by this time so enormously increased the stock of the precious metals that the further production had a constantly decreasing ratio of effect.

The proper interpretation of this price epoch I conceive to be, that the great upward movement of prices which followed the discovery of the new supplies of the precious metals had spent itself. The stock of metal accumulated was now so large that the further additions, although increasing rapidly, failed to raise prices. The counteracting influences to which I shall refer later were having their effect. The result was a balancing of tendencies and nearly stationary prices.

THE ADVANCE IN PRICES—1790 TO 1809

The cause of the advance in prices which took place at this period was much debated at the time; and even now, from the perspective of a century, there is by no means an agreement among economists. It is one of the historical questions which, perhaps, can never be settled. There does not appear, however, to have been any change in the supplies of gold sufficient to cause the advance in prices referred to.

The following table shows the estimates of Dr. Soetbeer as reduced to dollars by the United States Director of the Mint for the average annual production of gold and silver for the periods mentioned:

Period	Gold	Silver
1741-1760	$16,356,000	$22,162,000
1761-1780	13,761,000	27,133,000
1781-1800	11,823,000	36,540,000
1801-1810	11,815,000	37,168,000

The Bank of England had been obliged to suspend specie payments, and countries other than England had also by the use of paper currency set free a large quantity of the precious metals, thus increasing their supply. But on the other hand, the unsettled conditions prevailing at that time tended to cause hoarding and withdrawal of gold from use in the arts or circulation, so tending to off-set any increase of the temporary supply from the reason mentioned.

The cause of the rise in prices at this period is probably to be looked for outside of the fluctuations of currency. The world-wide Napoleonic wars prevailing at that time with their Berlin and Milan decrees and general restriction of trade and destruction of property, ought to account for a part at least of the advance.

The work of Tooke, published in 1823, Thoughts and Details on the High and Low Prices of the last Thirty Years, which was subsequently incorporated in the History of Prices, finds the principal cause of the rise in prices at this time in a number of seasons of poor crops. But Jevons pertinently points out that "though corn did rise extravagantly in price on several occasions during the period under review, on the whole it did not rise so much as metals, fibres, oils, and some other articles."[12]

Into the details, however, of this interesting but voluminous controversy it seems hardly profitable to enter. The action of prices at this period appears to the writer to indicate that it is quite possible to have a general rise in prices in the absence of important new supplies of the precious metals.

THE DECLINE IN PRICES—1810-1849

After the first decade of the Nineteenth Century a decline in the production of gold and silver, which was something more than a mere reaction from previous high figures, made its appearance. The principal cause of the decline was undoubtedly the rebellion of the Spanish colonies in America. This struggle for independence lasted for twenty years and resulted in demoralizing the mining industry of Spanish America. According to the estimate of Mr. Jacob the result of this falling off in the supply was a decrease in the world's stock of the precious metals from 1809 to 1829 of the value of 66,611,440 pounds sterling.[18]

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[12] Investigations in Currency and Finance, p. 131.

According to the estimates of Dr. Soetbeer, as reduced to our money by the United States Director of the Mint, the average annual production of the precious metals during the first decade of the Nineteenth Century was $11,815,000 gold and $37,168,000 silver. But during the second decade, in which the war was raging, he estimates the annual average at only $7,606,000 gold and $22,479,000 silver. And in the third decade the production was $9,448,000 gold and $19,144,000 silver. In the fourth decade the war was ended, and the production is put at $18,484,000 gold and $24,793,000 silver.

After the close of the revolutionary conflicts the produce of the mines showed signs of increase as indicated above. And there was some increase from Siberia and other parts of the world. But the period under review was notably one of decline in the production of the precious metals. And the effect of this decreased production should be carefully noted. The general tendency of prices during this period is undoubtedly downward, as shown by the most careful investigations. Now, however, our records of prices show those alternate periods of action and reaction, of boom and depression, which characterize modern times. These periods of inflation followed by liquidation represent the ebb and flow of business; and, in the final analysis, are psychological in their cause, as they represent the effects of economic conditions upon masses of business men. It has been found that these periods of speculative excitement alternate in fairly regular intervals, and that they are usually about ten years apart.

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[18] Jacob, Precious Metals, Vol. II, p. 322.

These periods of business boom and depression are in a sense independent of legitimate changes in the value of gold. But the two price-making factors are closely related, and act and react upon each other. A change in the value of gold due to an actual variation in the legitimate demand and supply may be taken up in one of these periods of speculative inflation and greatly exaggerated. The only way, therefore, for the economist to distinguish the effect of legitimate conditions upon prices is to take an average of a certain time, including several of these speculative cycles, or to compare a certain period in the speculative cycle with a like period in another speculative cycle and thus to detect the secular movement of prices.

Below I give the index numbers of Professor Jevons which apply to this period as he has arranged them from the gold prices of forty commodities, as given in Tooke and Newmarch's History of Prices, the year 1782 being arbitrarily taken as 100. The declines in price following the panics of this period are to be noted and also the elevations in price occurring, as Jevons points out, in the years 1818, 1825, 1836, 1839, and 1847. These and other irregularities are apparent; but the downward tendency in this period of decreased gold production is clearly shown:[14]

1809	157	1815	109	1821	94
1810	142	1816	91	1822	88
1811	136	1817	117	1823	89
1812	121	1818	132	1824	88
1813	115	1819	112	1825	103
1814	114	1820	103	1826	90

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[14] Investigations in Currency and Finance, p. 144.

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1827	90	1835	80	1843	71
1828	81	1836	86	1844	69
1829	79	1837	84	1845	74
1830	81	1838	84	1846	74
1831	82	1839	92	1847	78
1832	78	1840	87	1848	68
1833	75	1841	85	1849	64
1834	78	1842	75		

THE CALIFORNIAN AND AUSTRALIAN GOLD DISCOVERIES

In 1848 gold was discovered in California; and there was a great rush of gold seekers to the new Eldorado. The gold was obtained from placer diggings, and could be quickly and readily separated from the sand and gravel with which it was associated. In 1851 similar discoveries were made in Australia; and, as a result of these two new and rich sources of gold supply, the production of the world was greatly increased. In thirteen years from the discovery in Australia, an amount of gold was taken from the ground equal to the world's accumulated supply at that time. And although the production began to fall off in 1854, yet it has never since then declined to the figures which were common prior to the discoveries. The yearly average value of the gold ? taken out of the ground, which in the decade see p 18 1841-1850 had been $36,393,000, ? suddenly jumped in the decade 1851-1860 to $133,298,000.

The effect of this enormous increase in the supply of gold upon prices was important; but it was not as important as many competent observers at that time expected that it would be. M. Chevalier, for instance, wrote upon this subject; and his book, entitled A Probable Fall in the Value of Gold, was translated into English by Richard Cobden. Chevalier and his followers contended that the increased gold supplies, coming as they did upon a comparatively small stock of the precious metals, would result in a great revolution in prices somewhat similar to that which followed the discoveries of the precious metals in the sixteenth century. Let us follow Jevons in his most careful estimate of the rise which actually did occur. His estimate is that there was a net or permanent rise in prices of eighteen per cent. which can be attributed to the increased gold supplies.[15] By the expression "net or permanent rise" he means an advance which can be attributed to a change in the value of gold independent of changes of value due to periodic oscillations of trade. In order to arrive at this permanent advance he is careful to use in calculating the percentages the three lowest points attained after three different panics.

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[15] Investigations in Currency and Finance, p. 153.

Jevons was the first to systematize index numbers and to reduce them to a scientific basis; and the just esteem and reputation which he had among scientists gave his calculations great prominence and weight.

THE COURSE OF PRICES EXPLAINED

Certain it is that the alarmist predictions of Chevalier and his school were not realized. There were not those sudden rushes or jerks in price which, we are told, followed the great influx of precious metals from America in a former period. Business conditions were not the same in the nineteenth as in the sixteenth century. Business itself was of a much larger volume; communications were better; the world which could be affected by the new supplies was much larger.

Like all periods in the nineteenth century the increased facility in producing commodities was important and tended powerfully to counteract the upward tendency. This tendency, coupled with the fact that the supplies of gold in the first half of the nineteenth century had been falling off, was resulting in a progressive decline. It was necessary for the new gold production to first stop the decline and supply enough gold to make prices stable before it could result in an advance. As Jevons pertinently puts it:—"The normal course of prices in the present progressive state of things is, I think, downwards; but for twenty years at least this normal course has been checked or even reversed, and why should we hesitate to attribute this abnormal effect to the contemporary and extraordinary discoveries of gold."[16]

"The gold discoveries have had the double effect of arresting the fall of prices and then raising them. The total effect is not merely the rise that has occurred, but that rise *plus* the fall that would have occurred. This goes a considerable way to explain why prices have not risen so high as the vast supplies of gold might have led us to expect."[17]

During this period we have the usual ebb and flow of business with its alternations of commercial crises and business booms. It happened that when the increased gold supplies commenced coming upon the market, the country was suffering from a trade depression which had followed the panic of 1847. But the panic had nearly spent itself; and doubtless, in any case, there would have followed the usual rise in prices accompanied by speculation. The increased gold supply augmented the rise in prices which was taking place; and it also magnified the tendency toward speculation and gambling.

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[16] Investigations in Currency and Finance, p. 158.

[17] Ibid, p. 110.

The years 1852 to 1857 were years of "great prosperity." They were years of prosperity; but the prosperity seemed especially "great," because speculation and gambling were so rife that fortunes were quickly made. And though such fortunes were always few, their size attracted general attention. As for those who were not so fortunate, the high prices prevailing made their incomes seem larger and they appeared more prosperous than they were.

Business being so inflated, it was natural that the panic of 1857 should be unusually severe, and that the decline in prices from the previous high level should be considerable. In this country the civil war interfered in different ways with the regular course of business; but here, as well as elsewhere, prices, as measured in gold, tended to advance till 1873.

THE PERIOD FROM 1873 TO 1897

The price phenomena of this period illustrate the fact that there must be increasing supplies of gold in order to overcome the effects of the continued cheapening of commodities brought about by improved processes of production. The stock of gold was large all through this period. It was much larger than any which the world had seen previous to the Californian discoveries. The production fell off, it is true; but the amount produced yearly was still greatly in excess of anything known before the discoveries. There was a gradual decline in gold production from $155,500,000 in 1853 to $90,750,000 in 1874, in which year the lowest point was reached since the Californian and Australian gold fields had been developed. And it should be emphasized in passing, that gold production at this lowest point was over twice as large as the average annual production in the decade 1841-1850.

After 1883 the production of gold gradually increased, and in 1893 the previous high point was passed. And the stock of gold in 1897 was $4,594,900,000, as compared with $1,606,400,000 in 1850. Nevertheless, with this enormous stock of gold, and with a production from the mines which was much larger than any known previous to 1850, the period was characterized as one of falling prices. The most important reason for this seeming anomaly was the improvement in the processes of producing and transporting commodities in general. This factor, it is true, had been present in all modern times; but in the period under review it seemed as though every industry, no matter how insignificant, had been singled out by the inventor for some kind of improvement.

Even agriculture—and that part of agricultural produce which is of an animal nature—even the products which had previously yielded little to improvements in production, were enormously cheapened. Agricultural machinery was introduced on a large scale; and there were improvements in the methods of cultivation. But no doubt the most important development which affected the prices of agricultural products as well as other commodities, was the great lowering in the cost of transportation. This resulted in bringing the products of the fields and pastures of the most remote countries into close communication with the crowded centers of population of the old world. Thus some of the most carefully thought-out laws formulated by the classical economists as to the relative scarcity of animal and vegetable products in countries where commerce and civilization are rapidly developing, were set at naught.

Not only were the products of the farm greatly lessened in value; but manufactured products, it is scarcely necessary to say, were multiplied in almost all departments of industry. The authorities quoted in the note will guide the reader who seeks more detailed information.[18]

Causes on the other hand which tended to lower prices by putting the gold in use are seen in the increase in bank reserves, the accumulation of war chests by different nations, and a tendency to hoard by various financial institutions. Then, during this period, there was an increased use of gold as money. Italy and the United States passed from the use of inconvertible paper to the gold standard; while Germany, the Latin Union, and the Scandinavian countries abandoned the use of silver as a standard money metal and adopted the gold standard.

Then, too, owing to the unprecedented production, the stock of gold by this time had become so large that the additions from the mines constituted but a small percentage of it.

There were the usual alternations of panics and business booms during this period. The general tendency of prices to decline no doubt helped to make the periods of boom and speculative activity shorter and less extensive; while the panics of 1873 and 1893 were followed in each case by long continued declines in prices—extremely disconcerting to the promoter and speculator, although the country was rapidly increasing in wealth and resources.

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[18] Recent Economic Changes, by David A. Wells.
Quarterly Journal of Economics, Vol. I, p. 329 et seq.

The most important lesson to be learned from the various price phenomena observable in this period, is the fact that while there may be increased facility in producing gold, there may also be increased facility in producing other commodities. It ~~is not sufficient in these modern times~~ that there may be continued improvements in producing gold; but improvements in gold production must advance *pari passu* with improvements in producing other commodities. It must advance by leaps and bounds if it is to keep pace with the general improvement of production—otherwise prices are likely to decline.

THE PERIOD FROM 1898 TO 1909

The fact that gold could be produced in such quantities as to overcome all of the price lowering factors, was proved in the present era which opened in 1898. The production, it is true, had been gradually creeping up; and, as far back as 1893, the previous high point had been passed. Yet the increased facilities for producing commodities other than gold, the growth of business, and general demand for the precious metal, had been such that prices did not as yet respond. The stocks of gold had reached the sum of $4,594,900,000—the largest ever known. But the world of business had also grown; and its growth was even larger in proportion.

By 1898 the previous hard times had run their course; liquidation was over; and the natural reaction set in assisted by different minor factors, which it is unnecessary here to enumerate. The advent of what is called good times, accompanied as they always are by speculation, had the usual tendency to put up prices. Yet it is not probable that, in the early part of this advance, the new supplies of gold had much effect. A few statisticians and scholars had been watching the production of gold as it gradually crept up, and had been wondering why more important effects were not discernible. And the advance at first was not particularly excited.

It was not till 1899 that average prices as shown by index numbers would appear to indicate any rise other than an ordinary trade reaction. On January 1st of that year a financial writer who had made a special study of the alternations of business activity, and who held the popular belief that these actions and reactions could be predicted by exact measurement of periods of time, made one of his prophecies in regard to the future of prices. He said that the time had then arrived for one of the periodical price depressions. But he lamented that the recent rise had not been as great as was expected.[19] This writer Samuel Benner, by name, is seldom quoted in scientific writings, doubtless on account of his empirical method. And yet Benner, the prophet, with his peculiar measurings of price movements, thinking that a price movement at a certain date must necessarily be repeated at another period, had been in several instances most successful. He had predicted numerous panics and business fluctuations with greater accuracy than could have been expected. But here he and others who looked at things in empirical fashion, were destined to fail. In 1899, instead of business receding, it started into a greater rush than ever; and prices, instead of declining, continued the advance.

The great increase in the supplies of gold were having their effect. There was something under the market that was of vastly more importance than the mere periodical action and reaction of business. True, there were minor panics and reactions. But they could not gather headway and pass over the whole country when the added supply of gold was just in the first exuberance of its effects upon business. Thus the financial panic of 1901 was a purely Wall Street affair, and did not pass into the general business of the country. Neither were these years featured by declining prices and reaction, as Benner had prophesied, but they were years of great speculation and rising prices both for manufactured as well as agricultural commodities.

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[19] Benner's Prophecies of Future Ups and Downs in Prices. Twelfth Edition, p. 225.

But action and reaction had not ceased to exert themselves. The business depression predicted by those who content themselves with mere measurements of time periods had passed on, but was not destroyed. The snake was scotched, not killed. Thus in 1903 we find some business reaction and the price declines that usually occur during the early part of such movements. But the spirit of speculation had been so stirred into activity by the previous inflation, and the influence of the increasing supplies of gold coming on the market were so important, that any depression or liquidation that would naturally have ensued was covered up. The world's annual gold production by this time was $325,527,200—over twice as great as it had been but ten years previous.

By 1905 prices were again moving upward, and business was what is called prosperous. Speculation was the most prominent feature in this, as well as in all, business booms. Agricultural land as well as agricultural products perhaps led the advance, although speculation was active everywhere. In Wall Street much money was made and lost. In the year 1906, however, while the market appeared to be active, yet the tendency of the prices of stocks was slightly downward. It is said that Wall Street discounts, and evidently it was preparing to discount a decline in business conditions. As we look at it now, we see that all the conditions which go before a panic were present. The increased production of gold had had its effect. It had smothered two panics and caused unlimited speculation; but, by this time, it had run its course. Now that orgy of speculation must be atoned for, and liquidation—even panic—is nature's remedy. Yet the panic of 1907 was born before its time, which shows again that business panics are not to be predicted by arbitrary measurements of time, but that they are brought into being by different influences, among which are the price changes caused by the cheapening or appreciation of the standard money metal.

The first decade of the twentieth century is an example of a time in which the full force of an increasing gold supply had its greatest effect. The direct effect it is true was small. But the legitimate advance in prices caused by the great production of gold was sufficient to set on foot that reckless speculation and expansion of abnormal credit which resulted in the notable advance.

This increase of supply came after a number of years in which the production, although large, was not commensurate with the increased facility for producing other commodities and with the increasing business demands and growth of population. It was thus added to a supply which was relatively small. Inasmuch as the increase came at a period of depression in the price cycle, it had little effect at first. But in a few years the advance gathered headway and carried all before it. The effect came principally at what would have been the end of an advance due to other causes. It took the market prices of everything off their feet and resulted in the wildest speculation on every hand. What would have been a decline in prices in 1899 it put off till 1903. And it cut short that business depression by again inducing speculation in the years 1905 and 1906. The whole period of illegitimate price movements and unsound, reckless, discreditable finance, resulted in the terrible panic of 1907.

For a period of high prices is by no means a preventive of panics. Advancing prices, on the contrary, but serve to increase the speculative spirit and so to bring one on. The commercial depression of 1903 was smothered because it came at the early part of the price boom—a rise in prices due to the increased production of gold of such an important character that it set in motion a fever of speculation, which required more time to run its course. The years 1905 and 1906 gave free scope to all the worst forms of financial excesses with the result which every one knows.

As before stated the ebb and flow of business is like the waves upon the sea, while the great movements due to changes in the relative facility in producing the standard money metal as compared with other commodities are like the tides which are so important that they are capable of carrying the waves upon their surface. To bring out this fact clearly it is only necessary to glance at any of the tables of prices or charts prepared from any accurate system of index numbers. The price movements due to fluctuations in trade are small indeed compared with the great price tendencies, extending over centuries at times, caused, as stated above by underlying conditions of value of the standard money metal, as compared with other commodities.

4✓ As a simple and well known instance we might compare the prices of wheat and corn selling in

Chicago after two panics—the one, in the case of a business depression which occurred in a period in which the tendency of prices was downward, and the other, in a period when the tendency was upward. After the panic of 1893 wheat upon the Chicago Board of Trade ultimately reached 48¾ cents a bushel, and corn 19½ cents. After the panic of 1907 the lowest price of wheat has been 84½ cents per bushel, and of corn 55½ cents.

Laboriously constructed index numbers show the same tendency, namely—that there is a difference between a period when the great price movements affecting general price conditions coöperate with the fluctuations of business and confidence, as contrasted with a period when they are pulling in opposite directions.

GENERAL CONCLUSIONS FROM THE HISTORICAL REVIEW

The central point intended to be brought out in this review is that, ignoring minor changes, due to crops, wars, the alternate ebb and flow of business, and other causes, the most important influence which determines price, is the cost of producing gold as compared with the cost of producing other commodities; and that anything which either increases or decreases the supply of the standard money metal has its tendency in lowering or raising the prices of commodities.

It is not possible for the economist to isolate his phenomena, and to find a time, for instance, when the effect of increasing supply of the money commodity was the sole cause operating upon prices. The only method is the one here adopted, namely—to examine the history of prices and to explain the minor changes so that we may see as clearly as possible the controlling causes of the more important price movements.

These extended swells of price can be best represented by the use of index numbers and of a chart. These index numbers show price ratios averaged, the individual movements of one commodity setting off the movements of another, so that the average prices represented, serve to show the fluctuations in the value of commodities in general as compared with gold. A chart is given below in which these average prices are represented by a curve based on an index number. The index number used from 1849 to 1889 is that of the Aldrich report as prepared under the direction of Professor Roland P. Falkner. It gives the prices in gold for the commodities averaged in which the importance is based on 68.6 per cent. of the total expenditure. In the year 1889 the index number of Dun is but half a point apart from that of Falkner, and the chart is continued according to the averages of Dun, which are weighted and based on the prices of 350 commodities. It was necessary to use two systems of index numbers for American prices in this period; and, notwithstanding the fact that the two systems are not prepared in exactly similar methods, the combined chart shows in a rough way and with sufficient accuracy the principal movements of prices.

There is also a curve showing the production of gold during this period. The estimates up to and including 1905 are those of Moody's Magazine, and for 1906, 1907 and 1908 are from the Financial and Commercial Chronicle.

The chart shows in a graphic way how increases in the supply of gold have been followed in two cases at least by appreciating prices.

The reader will note the sharp increase in gold production from 1850 to 1853. He will note the rise in prices which followed, the reaction after the panic of 1857, and the price culmination in 1866.

Attention should also be called to the manner in which the gold production remained steady between 1853 and 1897; but how, notwithstanding this fact, there was a tremendous decline in general prices between 1873 and 1897.

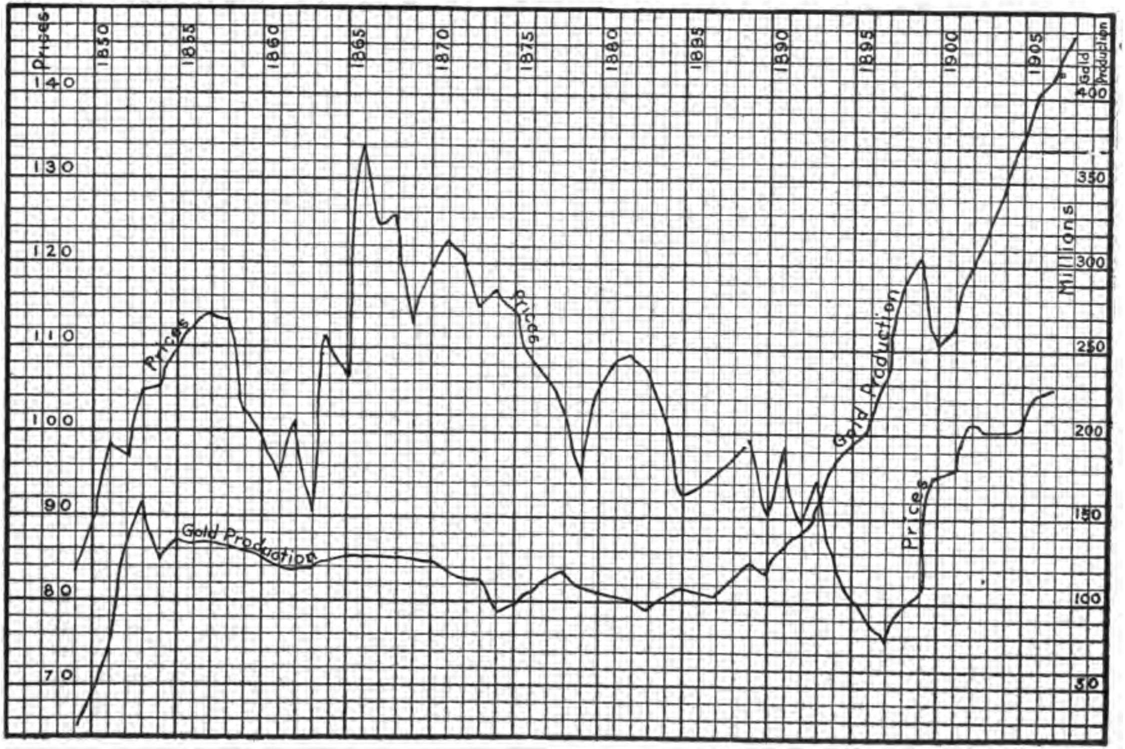

Chart Showing Gold Production and Prices

Another point to notice is that in 1893 the previous high point in gold production was passed; but the large production was not sufficient to overcome the periodic tendency for prices to decline which at that time manifested itself. It was not till 1898, when the gold production had rapidly increased, that the second upward movement in prices began.

It is true some critics take the position that the rise in prices from 1850 to 1866 was due to other causes than increased gold production. But the writer of this cannot help but concur in the opinion of Jevons which he has given verbatim above that it is significant that prices steadily fell for forty years previous to 1849, and then had an important advance, beginning just after the new gold began coming upon the market.

Then, too, it has been said that the advance beginning in 1898 is merely the reaction from the previous business depression, that it is one of those periodical oscillations of trade which are expected to occur at regular intervals. But let the reader compare the curve of the rise in prices since 1898 with the curve of prices 1879 to 1882 and 1885 to 1891, both periods preceding panics; and it will be seen that the present upward movement in prices is something more than a mere periodical price movement. And, following the example of Professor Jevons, as cited above in regard to a previous period, might I not call attention to the fact, that the advance beginning in 1898 was preceded by a long decline in prices, and that it was in the year previous that the really important increase in gold production first showed itself.

THE THREE GREAT PERIODS

It is to be regretted that there are not more extensive data from which to show the effects of gold supply on prices. The two cases of increased gold production followed by advances in prices shown on the chart, are the only ones capable of such representation. Of the great increase in the production of the precious metals and the rise in prices following the discovery of America, we have not sufficient records on which to base anything as definite as a chart, although the production of the precious metals and the consequent rise in prices are well known.

In all, we have but three great periods of increased production of the precious metals—but three periods in which there were sufficient additions to the gold stock to result in marked changes in price. These were:—

First,—The period following the discovery of

America and the resulting conquest of Mexico and Peru.

Second,—The output of gold resulting from the almost simultaneous discoveries in California and Australia in the middle of the nineteenth century.

Third,—The present period marked by discoveries of gold in Alaska and elsewhere, improved processes of working low grade ores, and other important inventions which facilitate the working of the mines.

It is an historical fact that each of these periods of great production was followed by an important rise in the prices of commodities. These instances may not be enough in the mind of the critical scientist to make a comprehensive induction. But it is significant that the instances we have, support the *a priori* argument.

As regards the circumstances attending each of these great price movements, it must be admitted that they are quite different in each period.

The production following the discovery of America was characterized by the exploiting of accumulations of the precious metals previously mined by a people who had found them so abundant that they did not know their value, and whose methods of production had been of the crudest sort.

The production of gold a half century ago in California and Australia was characterized by the rush of laborers and prospectors to what were then considered out of the way portions of the earth; and the speedy exhaustion of placer diggings which, although rich, could not last long before the helter skelter onslaught of an intensely individualistic throng. It was every man's battle, and the spoils were quickly divided.

But in the case of the recent production of gold, we find modern science with modern systematic business methods grasping the problem and solving it.

This difference in circumstances and conditions is further illustrated by the fact that the increased supplies in each of these cases were thrown upon a world in which business was differently estimated, and hence where the resulting effects were further differentiated from one another.

If it were not for the fact that there must be an important connection between gold supply and prices, the effects of increased production would not be felt through all this mass of conflicting determinants. It would appear that this is a case where the argument of *post hoc propter hoc* is so well supported by reason that even a limited number of instances beset with numerous difficulties should be carefully considered.

These difficulties, however, are so numerous that they form the basis for widely varying views according to the standpoint of the particular disputant. Thus it is quite possible to write the history of prices and attribute all of the price movements to causes other than the increase or decrease in the supply of the precious metals. Some investigators, for instance, are so impressed with the influence upon prices of credit and of many of the operations of banking that the importance of the gold supply appears with them to reach the vanishing point. Others attach such great importance to wars and the variations in the production of commodities at different times that they seem at least to give little weight to the production and supply of gold as factors in price movements.

M. G. Mulhall, in his History of Prices, calls it a "delusion" that prices depend more or less upon the stock of gold in the world and speaks of the "absurdity" of such a theory.[20]

Schoenhof is a writer who in some of his utterances appears to take the view that gold production has little, if any, effect upon prices.[21]

Cliffe Leslie and other economists both of the classical and of the modern school are careful to insist that, before attributing any advance in prices to gold production, we must allow for all the particular causes which might elevate or depress the price of any commodity.

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[20] p. 138.

[21] Cf. History of Prices, by J. Schoenhof.

Tooke and Newmarch are among those who are extremely critical of the easy way of accounting for all abstruse economic phenomena by referring to some variation in the currency; and Jevons, with other economists, has expressed the most cordial approval of this sentiment of the authors of the History of Prices.

Some of those who are thus critical of most efforts to attach great influence to the effect of increased gold supplies, occupy the highest place in their specialties among economists. Yet the broad fact of the three great periods of increased production of the precious metals, followed in each case by a period of rising prices, forms such a striking argument, and is supported so well by *a priori* reasoning, that there is perhaps no writer who consistently, throughout all of his writings, denies the connection between the cost of producing gold and price variations. It is the relative importance which is to be attached to the different factors which causes the great disagreement among scholars.

THE PRESENT SITUATION

By comparing previous price movements caused by gold production with the present situation, we can form some opinion in regard to it. We have had an enormously increased production of gold, especially since 1898; and a resulting rise in prices which even the occurrence of the severe panic of 1907 was not sufficient to neutralize. The first effect of the legitimate cheapening of gold and the first speculative boom furthered by the speculative conditions have been passed. The most fruitful sources of inquiry for us at present are the price phenomena connected with the later stages of a period of great production of the precious metals.

Referring again to the new supplies of gold and silver following the discovery of America, we find that they first reached Europe in considerable quantities in 1570; and that the stream of the precious metals coming from America and elsewhere suffered only occasional diminution till 1809. And yet the fact is undoubted that the main part of the resulting advance was finished in seventy years. And, after this advance, although production was still creeping up and increasing, yet prices for a century and a half almost stood still, failing to respond to larger and yet larger supplies which were continually coming forward.

Again we find that although prices had a great rise after the Californian and Australian discoveries, yet within twenty-three years from the time when the first effects were noticed, and, although there was still an enormous production from the mines, prices indicated a marked tendency to decline.

Thus it is seen that there are important counteracting tendencies which bring a rise in prices due to this cause to an end, even before there be any material decline in the production of gold.

How long will the present tendency toward advancing prices last? So far we have had but twelve years since the low point in 1897. Again, in the present era of gold production, we have had a steady and increasing output. As before stated, every resource of science is being marshalled to produce gold in enormous quantities.

In order to weigh critically both the tendencies that make for an advance and those which make for a decline, it will be necessary to examine separately the different price-making factors. First I shall take up in some detail the facts of the recent gold production. Then some difficulties which complicate the subject will be discussed. Having done that we shall be in a position to consider seriatim the more important of the factors which go to augment the effects of increased gold production. Then will follow a chapter in which each of the important counteracting influences will be taken up; after which I trust it will be possible to make some estimate or prediction as to whether the present and recent production of gold will result in an advance of prices from their present level.

CHAPTER II

THE RECENT INCREASE IN GOLD PRODUCTION

THERE have been discoveries of gold in recent years in Alaska and elsewhere; but the principal feature of the great production is the series of remarkable improvements which have rendered it possible to work mines and gold deposits, which could not be operated profitably according to former methods.

For gold, though very scarce and very valuable, is one of the most widely distributed of metals. It is found in different chemical combinations and in different kinds of ore. It is found mixed with soil, sand, and gravel. It is an ingredient of sea water, and it is found in the dust which floats in the air.

THE GOLD DREDGE

A portion of this vast field of possible exploitation has been rendered productive by modern invention. By the use of the gold dredge, for instance, it has been made possible to lift a cubic yard of auriferous gravel, wash the gold out of it, and return the detritus to the pool from which it was taken, at a cost so low that some have estimated it at two and one-half cents. It is thought that the greater amount of gold bearing gravel in the world can be worked at an average cost of six cents per cubic yard; and there are thousands of square miles of such gravel, even if we reckon only the auriferous fields, in which the yield equals or exceeds ten cents per cubic yard.[22]

These vast fields of gold bearing sand and gravel are the low lying portions of the earth, where the smaller particles of gold have been washed from the surrounding hills and mountains. The placer digger in the days of '49, with his pan and sluice-way, took only the larger nuggets, which were too heavy to be washed away. But through centuries the smaller particles have been washed down in the mountain torrents, and now are widely distributed in thousands of acres of land. It is by the recently perfected gold dredge referred to, that these almost unlimited fields can be worked. This dredge has much the appearance of an ordinary steam dredge with buckets which carry up the soil and gravel. But it is so arranged that, when the auriferous material is elevated to the dredge, it is washed, sifted, the gold removed from it, and the detritus left behind, as the dredge slowly eats its way through the gold-bearing land—floating, it may be, in a pool which it is continually dredging out in advance and filling as it passes on. With thousands of acres of land yielding gold in paying quantities, if worked in this way, we see the possibilities of this modern invention.

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[22] Cf. Professor N. S. Shaler in International Monthly, November, 1901.

THE CYANIDE PROCESS

Great progress, too, has been made in the chemical side of the problem. In the ore from the deep mines where the gold had not been set free from its quartz matrix, it was found to be an exceedingly difficult matter to separate it. The process of amalgamation was the principal reliance of the miner; but it was difficult to bring the mercury in all cases in contact with the gold; and vast amounts of low grade ore, widely distributed over the earth, could not be worked at a profit.

The dissolving power of cyanide of potassium upon gold had been known for over a century, but it was not till 1889 that this reagent was seriously proposed as a means of extracting gold from the ore. Since that time the methods of utilizing it have been brought to such perfection that it is used the world over. Professor Meade, in his recent work, The Story of Gold, declares that no such revolutionary discovery as the cya-

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nide process has been recorded in any other important industry during the last quarter century.[28]

The effect of the cyanide process is well illustrated by the great increase in production in South Africa, as that region has much low grade ore which is capable of being handled to advantage by the new method. In 1888 it produced but little over four per cent. of the total gold output, while in 1898 it produced forty per cent.

OTHER IMPROVEMENTS

There have also been improvements in the numerous details of the process by which the gold is brought from mine to mint. There have been improved compressed air drills. Electricity has been used as power in the different processes. Hydraulic mining has been developed. The methods of concentrating the ores have been greatly improved; and the increased facilities for transportation have enabled the gold miner to obtain his supplies at much less cost.

As a result of all this, we find that the cost of producing gold has been greatly reduced. Again referring to Professor Meade, we find that in the Treadwell mine, for instance, the total cost of mining and milling in 1905 was but $1.35 per ton. In hydraulic mining, gravel has been treated at a cost of but 2.1 cents per cubic yard, and a profit made when the gross yield was but 2.52 cents per yard of gravel. And even gold dredging, which would naturally be more expensive than hydraulic mining, has been done at a cost of four cents per cubic yard.[24]

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[28] Story of Gold, by Edward S. Meade, p. 148.

STATISTICS AND COMPARISONS

The increase of production due to these extraordinary improvements has been rapid indeed. Below I give a short table showing the annual production of gold in recent years:

1883....	$ 95,392,000	1897....	$237,833,984
1884....	101,729,600	1898....	287,327,833
1885....	108,435,600	1899....	311,505,947
1886....	106,163,900	1900....	258,829,703
1887....	105,774,900	1901....	260,877,429
1888....	110,196,900	1902....	298,812,493
1889....	123,489,200	1903....	329,475,401
1890....	118,848,700	1904....	349,088,293
1891....	130,650,000	1905....	378,411,054
1892....	146,292,600	1906....	405,551,022
1893....	158,437,551	1907....	411,294,458
1894....	182,509,283	1908....	443,434,527
1895....	198,995,741	1909....	457,567,280[25]
1896....	211,242,081		

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[24] Meade, Story of Gold, pp. 110, 111.

[25] Estimated.

All previous records have been passed. The gold miner has come to his own. In the year 1909 it is estimated that more gold was taken from the ground than in the entire decade, 1841-1850.

In the ten years from 1899 to 1909 an amount of gold was produced greater than the entire stock of that metal in 1882.

Adding together the total production of gold for all the years from the discovery of America in 1492 to 1875, it does not equal the production since the latter date.

In the estimates for the last year, 1909, an interesting and significant feature is the fact that according to the detailed figures as given in the Engineering and Mining Journal, "Australia alone of the prominent producing countries showed a decreased output."

However, in calculating the effect of this increased production, we must keep in mind the fact previously alluded to, that in the case of gold the stock on hand must be considered as a part of the supply. And it will be interesting and instructive to compare the situation in 1898 and the production in the ten years which followed, with the situation in 1850, and the decade of increased production following that year.

In 1850 it appears that the production for the previous half century had not been sufficient to meet the world's demands. Taking the estimate of Moody's Magazine, we find that the stock on hand in 1850 was $1,606,400,000; and the production for the next decade as estimated by the United States Director of the Mint was $1,332,981,000, or an amount equal to 82 per cent. of the stock at the beginning of the decade.

In 1898 the world's visible supply of gold was $4,614,600,000, and the production for the next ten years was $3,420,111,228, or 74 per cent. of it.

Thus it is seen that comparing the production of the two decades with the stocks on hand at the beginning of each, the production in the decade 1851-1860 was, comparatively speaking, the greater.

The production in the decade beginning in 1851 increased with great suddenness as the gold from the placer finds did not require any extensive outlay of capital before working. The present situation is different in that the increase is the result of extensive and deliberate outlays of capital; and the widely distributed deposits of low grade ores and auriferous materials now being worked, will not be materially diminished for a long time at least. So gradual has been the increase in production in the present period, that it is difficult to say at exactly what date it began.

Since 1888 there has been an almost continuous yearly increase, the pace being gradually accelerated, which accounts for the smallness of the percentage of increase.

The recent increase in production is important, but it does not appear to be relatively as important as the sudden production from the placer mines in the middle of the nineteenth century. The interplay of economic forces is so complicated that every consideration must be examined before we can make a price prediction. A judicial attitude is necessary; and all the evidence must be carefully weighed before an opinion is to be ventured upon this most abstruse problem.

CHAPTER III

SOME DIFFICULTIES CONSIDERED

THERE are several writers upon this subject who take the position that if any increase in the production of gold takes place, the effect must be uniform—that, for instance, if the supply of gold be doubled the price should be doubled also. Or again, they make the argument that if prices rise unevenly, the rise must be due to some other influence than an increased gold supply. They will even succeed in finding some commodity which will decline in price during a general advance. And such an instance they will point to triumphantly as showing that prices are not influenced by the supply of gold; else, how could any commodity go down at the same time that others go up, if the standard itself were changing in value? This argument seems entirely plausible both from the fact that it appeals to reason, and from the high standing of some of those who advance it. Nevertheless, I believe it will not bear examination.

PRICE-MAKING FACTORS

We must call to mind first the multitude of determinants which enter into prices as price-making factors. It is not one person who declares what prices will be—but millions of persons, all higgling in the market, and all having their effect on the prices which ultimately issue.

Now, the ratios at which different commodities exchange for one another, are determined by this higgling in the market. And gold, as many economists have remarked, is a commodity as much as any other. It differs from the others only in the fact that it has been selected as the standard in the terms of which all the others are exchanged.

It is the supply and demand of gold and of other commodities which determine the price of each. Thus suppose there be a great increase in the supply of gold. That would tend to cause a rise in the price of every other commodity. But suppose a particular commodity to increase its supply at the same time, then this tendency might neutralize part of the advancing tendency. It might even do more; it might cause the commodity to decline in price. Thus we have an explanation of the fact that seems to puzzle some economists, who appear to think that any decline in the value of gold must make the price of all commodities advance *pari passu.*

Hence we find the price of each commodity is influenced by its own particular price-making factors; and also, it may be, by the price-making factors of the group to which it belongs. And smaller groups form part of larger groups, all being influenced by the demand and supply of the standard money commodity—gold.

HOW THE EFFECT OF INCREASED GOLD PRODUCTION MAY BE ITSELF UNEVEN

But the complications of price making are by no means exhausted in the statements made in the last paragraph. Not only are there price-making factors peculiar to each commodity tending to make prices uneven; but the effect of the new supply of gold may be itself uneven.

If we have a basin of water and pour in more, one of the first effects will be an elevation of the surface of the water in that portion of the basin near the intake. And the change will be felt in a series of ripples and waves, which will act and react upon one another until at last we have equilibrium. In something the same way will the supplies of new gold affect the prices of commodities; and it was noticed, for instance, that the increased supplies after the discovery of America affected prices in a series of jerks or rushes as the influence of the new gold was felt in district after district of the then commercial world.

This action and reaction is of course a very complicated matter; and it would be impossible to describe exactly how each economic unit passed on the effect to the next economic unit and so forth. It would be as difficult to describe exactly the process, as it would be to describe, in the illustration given above, the motion which each molecule of water would take before equilibrium was established. And even to describe the general principles by which the result was accomplished would seem to be well nigh impossible.

Neverthless, Professor Cairnes undertook this task; and his discussion of the question has become classical. He was of the opinion, as a result of his reasonings, that those commodities which fall most extensively within the consumption of the productive classes, will be the first to rise, and that the advance will take place first in the gold producing countries. He thought that the price of manufactures would be less likely to maintain a sustained advance than raw products; and that among raw products, those derived from the animal kingdom would show more marked effects than those derived from the vegetable kingdom. As regards the progress of the advance among nations, he believed that countries like the United States and Great Britain, having a fully developed credit system, would show the effects of the new supplies next after the gold producing countries; and that the last to be affected would be countries of a backward commercial development.

It appears to most writers who have examined the subject that the discussion of Cairnes is a most excellent one, and that he proves conclusively that the action of increased supplies of gold upon prices is naturally uneven. But Cairnes saw things from his own time and standpoint; and conditions are different to-day from those prevailing when he wrote. For instance, the new gold is not as likely to come first into the hands of the people of the gold producing countries nowadays, when machinery and large corporations are such conspicuous factors in gold production, as in the early days of placer diggings, when it was more common for a miner to be his own capitalist. Then communications have been so much perfected that the prices in the gold producing countries are not likely to advance as rapidly and as far ahead of other countries as in Cairnes' day.

There are other opinions than those of Cairnes. For instance, Alexander Del Mar, writing in the Bankers Magazine of New York in September, 1905, makes marketability the principal test, and takes the position that those commodities which are most marketable at any particular time will be the first to rise.

Cliffe Leslie makes a cynical side-thrust at one of Cairnes' favorite theories in the following passage from an article published in the North British Review in June, 1865: "So far too as the rise of prices was really caused by the increase of gold, and not by the scarcity of commodities, it should be taken into account that a great part of the gold current at first came not from the new, but from the old mines of the world, brought by immigrants who did not come empty-handed, and who were driven to spend a good deal of old money before they could make any new, or even get to the mines. Hence the first fall in the value of money in the gold countries was in a great measure due to a temporary and abnormal condition of things, and not to the fertility of the mines."

In theory too there have been advances in economic science since Cairnes' day, and some of his working hypotheses are not strictly in accordance with the latest tendencies of financial writings. But a discussion of that phase of the subject would take me too far from the purpose of this essay, as it would involve a discussion of the entire field of monetary science.

However, it is not absolutely essential to show just what commodities will advance first, or in what countries they will advance at any particular time. The reader issues from the discussion of Cairnes with the strong conviction that, even if he may not have described the process exactly for the present time, he has proved at least that the effects of increased gold production do not necessarily lead to an uniform advance in price.

Not only would the influences mentioned prevent the prices of the different commodities from advancing evenly; but the effect, having been once exerted in a particular way, the commercial system could never be put back into the same position that it was in originally. Economic conditions are not made to run by rule, and the economic structure cannot be taken apart and replaced at will by the operator. "Just as when a large building," says Professor Laughlin, "erected by fitting one timber or board to another, is levelled to the ground by a tornado, exactly the same building can never again be reconstructed out of the old materials,—for reciprocal parts are wanting;—so, after a serious commercial disaster, like that of 1873, producers must make entirely new estimates as to the extent of demand, and supply must be adjusted to new conditions. In this way a great derangement of trade and credit will produce unequal effects on different commodities."[26]

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[26] Quarterly Journal of Economics, Vol. I, p. 329.

In the same way anything abnormal in business conditions enters into history and cannot be undone whether it be a panic or a price advance.

I shall now pass to the consideration of other influences which have their tendency to further complicate the issue and set in motion other economic forces which again act and react upon one another and still further make the advance in prices uneven.

EFFECTS OF SPECULATION

The effects of increased gold production in the world of commerce have been compared above to the effects of water poured into a basin in which the separate molecules, after the addition to them, tended toward equilibrium. In so far as the economic units correspond to inert molecules of water, the effect of pouring more gold into the world's supply of the precious metal would be toward equilibrium in the same way.

But it has been found that the actions of man are not to be predicted and described beforehand with the same precision as that of the particles of a liquid. The economic man may have only such feelings, desires and impulses as his creator may suppose him to have; but it has been found that it is impossible to forecast just what the real man will do in case a given stimulus be applied. The effect of such a stimulus will be according to the nature of the man himself. Now one of the most important characteristics of the ordinary business man is his speculative nature; and even if it be granted that the increased production of gold affects all commodities in the same way at first, yet the speculative nature in man would be the cause of getting prices uneven by reason of the psychological effects of price movements.

Cairnes to a considerable extent realizes this; as he says that prices will advance more rapidly in countries which have a fully developed banking and credit currency system like England and the United States. But he does not realize the full effect of speculation in making an advance uneven.

When the value of any commodity changes, as compared with the value of any other commodity, speculative excitement does not necessarily result. For instance, when the holder of a piece of land learns that it will exchange for more iron than formerly, he does not became excited. But when the owners of land in a certain vicinity become aware that their land will exchange for more gold than formerly—in other words, that the price of their land is advancing—they have been known in that case to develop a fever of the most intense speculative excitement with a land boom and all of its excesses.

When the value of gold falls there is a tendency toward a rise in the price of all commodities. But some of these commodities are speculative, and some are not. For instance, let us suppose through a fall in the value of gold that all commodities have had an even advance of ten per cent. This rise will not be noticed in regard to some commodities which are little used or not speculative favorities. But when land, or cotton, or stocks, begin to rise, then we may have the speculative spirit awakened.

A legitimate advance of ten per cent. in the price of a speculative stock may result in a speculative advance of fifty per cent. in the price of that stock; solely because the advance of ten per cent.—while it was justified by conditions—so fanned the speculative spirit that eager buyers were soon bidding for the stock at fifty per cent. advance. But at the same time some security or commodity, the price of which is largely governed by custom, may have so much inertia that it may not show the ten per cent. advance, which was fully justified by the decrease in the value of the standard.

Each commodity has its fluctuations in conformity with its supply and demand; and these fluctuations are caused by the nature of the commodity and the nature of its particular supply and demand. The fact that gold is the money commodity results in the fact that any change in its value may cause an uneven movement of prices affecting speculative commodities in a quite different way from other commodities.

CUSTOM

Custom is another of the many different influences which may change a price tendency, which at first is evenly exerted into one in which the pressure is uneven. If a business man has put a particular article upon the market at a price of ten cents, and the value of gold falls five per cent., he does not necessarily mark up the price of the article a fraction of a cent so as to exactly correspond with the fall in the value of gold. Nor would he necessarily mark the article at eleven cents if the value of gold justified exactly that figure. The effects of a change in the value of gold may be modified the same as any other price-making factor by custom and the habits of the people in demanding that a certain article shall always be furnished at the certain price which custom decrees.

There are articles which sell, for instance, at five cents at all times—in periods of price depression and inflation alike. The dealer in them is obliged to sell at the same price even if he must pay more for every article he buys. He may possibly be able to cheapen the production of the article, or to substitute one of inferior quality. Or, if he have a poor location, he may be forced out of business. Or he may keep on with losses or diminished profits, hoping for better conditions; but custom prevents him from changing his price.

THE PRICES OF SECURITIES

The prices of securities bearing a fixed rate of interest are governed by quite different principles than those which determine the prices of commodities and of common stock. The price of a preferred stock or of a bond is not governed by the actual value of the property covered by the security, except to the extent that the payment of the principal or interest of the security may become doubtful through an unfortunate condition of the business of the corporation. But this is unusual,—or at least is supposed to be unusual; as the purpose of issuing preferred stock and bonds is to make some investors secure, while leaving to the common stockholders the losses and gains which come from a great risk.

Good preferred stocks and bonds therefore have a nearly certain income; and that income remains the same whether the value of the plant or the profits of the business decrease or increase. Hence it is that the money market, or the prevailing rates for money, are the controlling influences in regard to the prices of such securities.

Now the profits of a business depend upon the fact that the business man buys commodities which he afterwards sells either in a changed form or in their original form, at a greater price than he paid for them. Suppose, however, that prices in general are advancing. This adds to his profits in a greater or lesser degree, according to the time taken in the productive process in his particular business. But if business profits are averaging greater than usual, those who have money are more inclined to enter into business with it than to loan it. Hence the amount of loanable funds is cut short with the result that the rate of interest rises.[27]

Recurring now to what was said in regard to preferred stocks and bonds which have a nearly fixed income, the effect upon the price should be carefully noted. When capital brings a higher rate of interest in the money market, the value of a security bearing a fixed rate of interest must decline. Hence we have the chain of events. The decline in the value of gold causes a rise in the prices of commodities. That gradual rise results in an increase of business profits, which is soon followed by an advance in the rate of interest on capital, and hence a decline in the value of income-bearing securities in which the rate of interest is fixed. Thus an advance in the prices of commodities results in the seeming anomaly of a decline in the prices of some securities.

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[27] Cf. Appreciation and Interest by Professor Irving Fisher, in Publications of American Statistical Association, 1896.

Professor John B. Clark in Moody's Magazine, December, 1905.

Interest and Appreciation, by Byron W. Holt, Sound Currency Pamphlets, Vol. 5, No. 22.

As an example illustrating this fact we have the case of British consols reaching an extremely low price at the very time when the common stocks of corporations and of commodities were at the highest point. It is true there are exceptions to this tendency which are due, as above hinted, to the fact that a bond, for instance, may be insecure; but, owing to a boom the business of the corporation may improve; and hence when the prospects for interest are changing from uncertainty to comparative certainty, the bond will naturally rise in value. But in regard to the selling price of bonds where the payment of interest is assured either in good or bad times, the above principles will apply, except that the market price of the bonds will have the ups and downs due to the ebb and flow of speculation and business, as previously explained.

A QUESTION OF TENDENCIES

The attempt has been made to discuss a few of the influences which tend to make uneven an advance in price due to an increased supply of gold. And this has been rendered necessary by reason of the different writers who are continually referring to an uneven advance in commodities as a proof that the advance could not have been caused by increased gold supplies. For instance, Schoenhof in his History of Money and Prices, in discussing the movement of prices in England in the seventeenth century, notes that the price of wool remained nearly stationary at the same time that most commodities were advancing.[28] This fact he makes much of, and he thinks that by calling attention to it he has refuted the doctrine that one element in determining prices is the demand and supply of the standard money metal. He even quotes Thorold Rogers to prove that there was a special reason why the price of wool should be weak at that period. Throughout Schoenhof's History of Prices there are references to price movements similar to that just referred to in the case of wool, in which the price of a particular commodity is seen to move differently from that of other commodities, which the author is continually quoting to show that the abundance of the standard money metal can have nothing to do with prices.

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[28] Cf. History of Money and Prices, by J. Schœnhof, p. 139.

And the postulate that, where there is absolute convertibility, the value of the standard is one element in determining price, is confounded by Schoenhof and others with the quantity money theory—doctrines which are quite separate and distinct and which are usually held by writers of opposite financial schools of thought.

But it is nothing strange that all commodities do not advance in exactly the same ratio, or that some even decline in the face of a general advance. The effects of gold production exist as a tendency which may be obscured or neutralized by other tendencies in a particular case.

The physicist in his laboratory will perform numerous experiments showing the opposition of different tendencies, and the resultant effects. An apple may be lifted from the ground; but that does not prove but that the force of gravity might not have a tendency to make it fall at the same time.

If these things be true in physical science, why might not their analogues be true in the world of commerce? Why might not a commodity have price tendencies which exert their effect on it in different ways at the same time?

A commodity may have a price tendency common to all commodities arising from changes in the value of gold. And that tendency may be smothered in some cases and magnified in others according as it is affected by various material and psychological influences. And there may be numerous tendencies affecting commodities and groups of commodities, all working at the same time and all having influence at different points in determining this complicated thing we call price.

CHAPTER IV

INFLUENCES WHICH TEND TO AUGMENT THE EFFECTS OF INCREASED GOLD PRODUCTION

THE influence of an increased gold supply is toward lowering the value of that metal. But there are certain other factors which have a tendency in the same direction, and which augment the advance. Some of these tendencies are merely secondary effects of the increased supply. But others are independent, or partially independent, and all must be taken into consideration in estimating the results of increased production. In this chapter these augmenting influences will be discussed.

SPECULATION

Speculation has been alluded to as an influence which makes uneven, an advance due to increased gold production. But at times the spirit of speculation becomes so rampant, and the resulting advance in prices so widespread, that the purchasing power of gold is, for the time being, greatly lessened. In the historical review of this subject those speculative booms and depressions which mark the ebb and flow of business were alluded to. These movements keep repeating themselves in fairly regular intervals; and it is important in calculating the effects of increased gold production, whether our estimates be taken at a point of speculative activity or the reverse in the alternation of business cycles.

If there be a large production of gold sufficient to have a considerable effect on prices, the speculative boom which would come on during this period is fanned into a white heat. The different causes coöperate to make much speculative excitement and a great rise in prices. Thus 1905 and 1906 were years in which, from the magnitude of the speculative boom, it might be inferred that cheaper gold and speculation were each assisting in the great upward movement in prices.

It is true that all speculation is not of the character just mentioned. For instance, John Stuart Mill in his Political Economy, refers to a kind of speculation which consists of buying a commodity when it is cheapest and storing it till the price becomes unusually high, at which time it is sold; and the speculator in that case would make his profit, and at the same time his operations would tend to equalize the price.

In the last few years several writers have investigated and discussed the principles of legitimate speculation along the lines referred to by Mill, as mentioned above. And, especially since the panic of 1907, there have been numerous articles in magazines and other periodicals in which the writers have endeavored to instruct the people upon the subject of legitimate speculation and investment. It is to be regretted that this movement was not begun at an earlier date, and that it has not gathered more headway at the present time.

The kind of speculation which is of the most importance in its price effects at the present day is the abnormal or illegitimate kind, which exaggerates the extremes of price movements. This kind of illegitimate speculation has its ill effects by reason of the fact that the average man, when he sees prices advancing, is carried away by his eagerness to make money; and, instead of reasoning calmly that prices after an advance should have a decline, he rushes in and buys, and his purchases but serve to augment the previous advance instead of checking it. Hence the current phenomena of speculative booms in land, wheat, stocks, cotton, and all speculative commodities and securities.

THE INCREASING USE OF CREDIT TO PERFORM EXCHANGES

As is well known those nations which are in a low state of commercial development have money consisting of metals and other substances, but few if any substitutes for money. In contrast, the manner in which a nation of advanced commercial development economizes in the use of the money metal is truly amazing.

Without special consideration of bank notes, greenbacks and other forms of paper money, on which public attention has been especially concentrated, we come at once to that great substitute for gold which is found in the transfers of bank deposits. By means of clearing houses and of the books of the different banks, the debits and credits are set off against each other with the greatest facility.

But these deposits which serve even better as a medium of exchange than the gold itself,—even these deposits did not necessarily come into existence by the deposit of actual money. When a bank loans a depositor money the amount of the loan is simply placed to his credit on the books of the bank; and, when the depositor begins checking against it, he usually but transfers it to the accounts of other depositors in the same bank or in others. But the bankers, finding their deposits increased, make further loans which are again credited on their books; and they keep up the process until both loans and deposits are expanded much beyond any figures which would be possible if it were not for the fact that borrowers seldom withdraw their credit balances in money but leave them at the bank where they form an addition to the currency and do the money work.

Thus with the development of the country we have that growth of deposit currency which expands to suit the needs of business and which relieves gold of much of its work as a medium of exchange. If it were otherwise,—if every person thought it necessary to keep with him a supply of gold in order to meet all his expenses and if gold were the sole medium of exchange, the demand for it would be so great that the present supply would be a mere drop in the bucket in comparison with this enormous added demand for gold for monetary purposes.

In the interesting pages of Bagehot we find summed up and explained with a master hand, the marvelous way in which gold may be economized by the use of credit in different forms and how a very great number of credit obligations may exist piled one upon the other—each one of them lawfully payable in gold; and yet the only fund to redeem them if payment in coin should be demanded is a comparatively small sum lying in the vaults of the Bank of England. The reason that more of these credit obligations are not pressed for payment is because they are doing better work and are more convenient as they are. When the credit obligations are no longer needed in the financial world, they are exchanged for capital which pays an income or for commodities which can be consumed—seldom for the barren gold whose principal function is to serve as a standard of value.

And yet Bagehot, although he understood the system so well and knew it to work so smoothly, was by no means certain that it was in all cases perfectly safe. For instance, he wrote: "We see then that the banking reserve of the Bank of England—some £10,000,000 on an average of years now, and formerly much less—is all which is held against the liabilities of Lombard Street; and if that were all, we might well be amazed at the immense development of our credit system—in plain English, at the immense amount of our debts payable on demand, and the smallness of the sum of actual money which we keep to pay them if demanded.[29] There is no country at present, and there never was any country before, in which the ratio of the cash reserve to the bank deposits was so small as it is now in England."[30]

At the present day there are many eminent English financiers who believe that the reserves in the English system are too small; and there is a movement on foot in that country to provide for their enlargement. Yet it would appear that it is more than a coincidence that reserves are so small in England, as that country is noted for the soundness of its finance. Might it not be said with all conservatism that a financially advanced country does not need to carry as large a proportionate reserve as a poorer country? As commerce develops, the tendency of all countries is to use credit more and more to do the work of gold in effecting exchanges.

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[29] Lombard Street, by Walter Bagehot, p. 30.

[30] Ibid, p. 18.

Under the heading of speculation, attention was called to the fact that we may have normal speculation as John Stuart Mill has conceived it; or we may have abnormal speculation which aggravates the very evils from which normal speculation would save us. In the same way in discussing credit it is necessary to remind the reader that it also may be abnormal. For instance, it may be based upon fraud or poor business judgment.

Abnormal speculation and abnormal credit go hand in hand. The speculator, buoyed up by the false hopes and estimates of value furnished him by market manipulators, buys a commodity at a time when, if he had followed the plan of Mill, he would have sold it. His purchases and those of others who think like him make a demand for the commodity or security resulting in a great speculative advance. But as time goes on it is found that the demand was a false one—the loans in the banks which brought certain deposits into existence were not of a sound nature. They were founded, as just stated, upon speculation which had been tainted with misrepresentation or misjudgment. Readjustment is then necessary. New collateral may be demanded; or a borrower may be asked to pay part of a loan. Or collateral may be thrown upon the market which may form one of the features of a panic. But after this readjustment of the business relations between the parties, it will be found that there is yet remaining a misadjustment of supply and demand for the different commodities, the principal feature of which is that certain goods have been produced in excess of the legitimate demand.

Thus, after the panic of 1873 it was found that railroads had been constructed for speculative purposes and by parties who had not correctly estimated the needs of the communities to be served at that time, and who had misjudged the ability to pay of those who had agreed to furnish the money for construction. Hence the resulting liquidation caused in part by abnormal speculation and credit in connection with the railroad industry.

Abnormal speculation and credit exaggerate the legitimate movement of prices. The sequence of events may be as follows:—First, an abundance of gold may exhibit a tendency to make that metal cheaper; and a rise in prices may occur which is entirely legitimate and which merely shows that, owing to a cheapening in production, more gold is necessary to exchange for other commodities. But, as before explained, the mere fact that prices begin to rise causes men to lose their heads. It gives the fraudulent promoter and boomer a basis of fact from which to work upon gambling and speculative instincts; and so, by misrepresentation and manipulation, to rush up prices. And the instrument used is abnormal credit which is not based on an ultimate exchange of values but in a pretended exchange of something for nothing which can only result in disaster in the end.[31]

The influences just mentioned are the fluctuating and temporary ones whereby abnormal credit and speculation control the temporary value of commodities as expressed in gold. But it is not merely to the illegitimate features of banking and finance that we should call attention. Banks are not gambling institutions and they perform just as legitimate a function as any in the world of business. If it be admitted that a fraction of the deposits of a bank may, in some cases, be used as a basis for speculation and gambling, it may be replied that the products of a farm, for instance, may be used as gambling counters in the game of speculation. Credit and deposit currency in their general features are a perfectly legitimate development of business; and it is just as natural that they be used for that purpose as gold for instance.

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[31] Cf. Alexander Hamilton, Report on a National Bank, December, 1790.

J. Laurence Laughlin, Money, Chapters IV and V.

C. F. Dunbar in Quarterly Journal of Economics, July, 1887.

Still we must remember that the use of gold to perform exchanges antedated the establishing of banks. In order that the facilities of banking may have their important effects, we must avail ourselves of them. If every man doing business demanded settlement in gold; and if he made laws and established customs whereby all settlements were made in that metal, then the supply would be found totally inadequate. Thus, while the use of banks is a step in evolution, yet that evolution is by no means complete. Elsewhere in this essay I shall refer to certain nations who are backward in their financial development, who do not avail themselves of banking facilities and so make an enormous demand for gold out of all proportion to the business that they do or to their population. Also I shall refer at considerable length to the steady increase in the number of persons who are bettering their conditions and who, even in countries like the United States and England, are slow to adopt banking facilities, and who effect their increasing exchanges by the use of gold and other money. In this connection I shall only call attention to the fact that even in America, there are millions of people who are intensely suspicious of all financial institutions, including banks. They are merely persons who fail to appreciate the effectiveness of the machinery of banking in the same way that all persons are not equally ready to appreciate the effectiveness of agricultural or other machinery, for instance.

With the overcoming of prejudice, however, and the increase of intelligence and confidence, and with progressive reforms in banking and financial methods, these millions of people are being brought to use banks and to perform their exchanges by means of a bank account and deposit currency, thus setting free the gold so that it enters into the supply and is made much more effective and does much more work.

But while this process is going on rapidly, the number of people involved is so large that it will take centuries before it is completed. Thus the work of gold as a medium of exchange will be lightened as the years go by. The great economies in its use will act powerfully in decreasing the demand for it. And this fact should be placed among the many causes which will augment the effects of increased gold production.

MODERN COMMERCIAL DEVELOPMENT

Under the last heading I have spoken of the increasing use of gold substitutes. But there are other developments in our commercial evolution which economize the use of gold. The great improvements in the facilities for transportation is perhaps the most important of these. It is obvious, for instance, that if the time taken to make the voyage from New York to Liverpool be shortened, as it has been, that the gold afloat to settle the international differences would be smaller than before. Not only has the improvement of transportation both by land or sea effected great economy in the use of the precious metal, but communication by telegraph and ocean cables has rendered it possible to dispense with many transfers of gold in international transactions.

Confidence, more general peace, higher regard for commence and the facility with which banking houses and other financial associations can be formed, are some of the phases of the commercial development to which I am referring. All of these and similar developments result in economizing gold both directly and also in furthering the other influences mentioned herein.

THE MELTING OF ORNAMENTS AND PLATE

Among peoples of a backward stage of economic development, the first use to which the precious metals are put is that of ornament or display. Among the ancients there was a comparatively small amount of gold used as currency. Great quantities were held or hoarded by kings and great magnates, in the form of ornaments. And gold plate was used in architectural display, for instance, more than at present. We have but to refer as an illustration to the biblical account of King Solomon's Temple and other well-known instances where great accumulations of gold were lavishly used by monarchs.

Then, also, in those days persons of moderate means were wont to put it in ornament and heavy plate much more commonly than in modern times. So to-day in countries which have not come into the full modern commercial system, we find it the custom among the people to have solid gold and silver anklets and bracelets, ear-rings and noserings, which are used partly for display; but which also serve the function of a savings bank or of hoards—for when famine or other trouble comes, the ornaments are quickly melted and exchanged for necessaries.

But as nation after nation comes into the modern system, and as financial institutions and business confidence are developed, this use of gold tends to cease. Savings are put in banks, securities, and other representatives of value. The heavy ornaments are melted and the material of which they are composed permanently enters into our modern coinage, thus increasing the world's supply of gold and tending to lower the value of that metal.

THE DECREASING PROPORTION OF GOLD USED IN THE ARTS

The demand for gold is two-fold—its demand for use in arts and for monetary purposes, such as coinage, reserves, etc., etc. It is important to observe whether the present proportion is likely to be maintained between these two sources of demand. With the increase of prosperity and well-being articles of luxury are likely to be used in greater abundance. But it has been noticed that as people advance in civilization and refinement the use of the precious metals does not form as prominent a part in their decorations and personal adornment. All peoples love display, but the glitter of gold impresses the savage and semi-civilized more than those in the modern stage of evolution. Hence it is not likely that the demand for use in the arts will absorb any larger proportion of the gold than formerly; and it is likely that the proportion will grow smaller.

It has been noticed that when any commodity has been cheapened in cost that it is difficult to induce the people to increase their consumption of it except after delay; and the cheapening of gold is not likely to prove an exception. Any immediate increase in the demand out of proportion to the growth of population and business must be found, if at all, in the monetary demand. The supply presses upon the demand for use in the arts; and the value of gold is only saved when the monetary demand halts the decline.

Another consideration is that gold cannot be held back from the market like other commodities. It is taken to the mint and coined; and the supply immediately has its effect toward lowering its value.

There is also another reason which makes it diffcult for the demand for gold to be used in the arts to have any increasing effect in raising its value. The value of the standard does not respond as quickly to changes in the supply and demand as is the case with other commodities. While the value of a gold article, as a ring, for instance, is governed by the same general principles as that of any commodity, yet the fact that prices are measured in gold results in the further fact that changes in the value of a gold article are not readily apparent. For the price of the commodity—gold, if it can be said to have a price at all, must be always the same. Hence when gold falls in value, the fact that the purchaser can buy the article with a smaller amount of other commodities than before is not brought home to him except in the most roundabout way.

When in the case of a commodity other than gold the cost of production is lowered, the consumer finds the fact reflected in its price. The article, for instance, that he has been buying for $15.00 is now marked at $10.00. Thus the language of price speaks to him with no uncertain sound. And he is able at once to consider the propriety of increasing his purchases.

But a gold article, on account of the work upon it, may refuse to decline; and, strange as it may seem, it may even rise in price as a result of a fall in the value of the material of which it is composed. Thus let us suppose a $20.00 gold ring in which there is $10.00 worth of gold and $10.00 worth of work in fashioning it. Then let us suppose that gold falls in value fifty per cent. The price of the gold in the ring remains exactly the same. It is still $10.00. But if gold falls in value the cost of doing the work upon the ring will rise. Let us suppose that since the value of gold has been halved that the cost of the work as measured in gold will be doubled. Hence the work which heretofore cost $10.00 now costs $20.00; and, adding the price of the gold which was $10.00 in both cases, we have $30.00 as the present price of the ring.

	Before the value of gold was cheapened	After the value of gold was cheapened
Cost of gold....	$10.00	$10.00
Cost of work....	10.00	20.00
Price of ring....	$20.00	$30.00

But the fact that, notwithstanding the price, the value of the ring as measured in other commodities is less than before will have a tendency to assert itself. For if prices have been raised 100 per cent. on the average, a certain price after the people get used to the new price level, will not appear as large as formerly. Hence in that roundabout way the fact that the exchange value of the ring has fallen will have its effect in increasing demand. But it cannot have the immediate effect which a decline in price would result in. The idea of measuring the value of all commodities in terms of the money commodity is most effective in making comparisons. But when we wish to gauge the value of the standard itself we are placed in an awkward position. We are so accustomed to use gold as the yard-stick of values that we are at first inclined to measure it in its own terms; and hence results the common delusion that the value of the standard never varies, and hence also the fact which we are now considering that changes in the value of a gold article are not realized to the extent that they would be if they could be represented in price.

From these considerations it is apparent that the proportion of gold used in the arts is likely to be a continually decreasing one. And, in corroboration we find the Engineering and Mining Journal in its annual review of trade for January 9, 1909, making the statement that: "The additions made to the world's visible stock of gold during 1908 amount in round figures to about $840,000,000, or about seventy-five per cent. of the total production during the year. This is, in all probability, the largest proportion of the production which has ever taken form and become a part of the world's circulating medium."

It is impossible to show such a tendency by statistics because our best statisticians can do little more than guess at the use to which gold is put. A jeweller may melt an eagle, for instance, using the gold in the making of his goods; and no one may be the wiser. But looking at the question from an *a priori* standpoint it would appear that the above considerations are relevant—that in short when we estimate the probable consumption of gold, it is on the monetary demand that we must principally rely to consume any large increase in the supplies from the mines.

GOLD A BY-PRODUCT

The fact that any commodity is a by-product always has an influence in increasing its production or in continuing its production when it would appear that it was unprofitable. Gold is emphatically a product of that nature. It is commonly found in association with silver, and any important development of silver production is likely to be accompanied by a greater or less production of gold.

Copper, too, is another metal with which gold is found. And copper mining has received a great stimulus in recent years owing to the use of that metal in connection with electricity.

The close association of gold with silver, copper, lead, and other metals cannot but help to steady the output and so to prevent any sudden decline in the new supplies.

SPECIAL AND LOCAL INFLUENCES

It is not the intention of this essay to discuss any but the broad causes of price movements, although it is fully admitted that there are numerous influences of a local or special nature which may have important results in particular times and in particular countries. The recent advance in prices is world-wide, and there will be equally broad movements in the future. The advance in this country, however, is greater than in others; and any further strength is likely to be strongly manifested here. The fact that agricultural products, particularly meats, have risen so high in the last ten years is no doubt due to the fact that this country has made such extraordinary developments in the way of manufacturing that agriculture has been overshadowed. Manufacturing is a later stage than agriculture in the growth of any country, and it is to be expected that agricultural products will sell at a relatively high price after a country reaches a certain stage of its development. The rise in the price of agricultural land, the exodus to Canada of farmers to buy land, and the building of the town of Gary to accommodate the steel plant, are separate indications of a great movement whereby this country is being transformed from an agricultural country to one in which manufacturing occupies a larger place.

Other local causes which help to account for past movements of price and which may cut some figure in the future, are the growth of trusts and labor unions. Such partial monopolies, however, work within narrow limits and frequently fail so signally in raising prices that the reaction may more than counteract the preceding advance. Tariffs, too, have helped to give some impetus to price movements in the last decade; but further changes in the tariff are not to be expected in this country in the near future. Local and special influences are less important than they appear to be, and we should be careful not to attach too much weight to them.

THE THIRST FOR GOLD

The love of wealth and of display is one of the strongest passions in all times; and it seems to find its culminating point in the thirst for gold. If it were attempted to analyze this passion, it might be suggested that one phase of it was the gambling spirit which leads men to devote their whole lives to prospecting for gold, when all admit that there is such a small chance for individual success.

In California and Australia in the early days, merchants and mechanics forsook their business and rushed to the gold fields, abandoning everything in the elusive search for the precious metal. Sailors forsook their ships, so that masters had great difficulty in getting men to supply their places in the returning voyage. The absence of competition in other lines of business is so great during one of these rushes that those who do let gold mining alone and devote themselves to other business, often lay the foundation of substantial fortunes; while of those who seek for gold, the prizes are few and the blanks are many.

To-day there are thousands of men wandering —prospecting, from place to place in regions in which they think that gold may possibly be found. Some of these men have passed their entire lives in the unrewarded search; and younger men are joining the ranks of the gold seekers and more than compensating for the losses that occur from death and desertion.

So impressed have some persons been at the terrible earnestness and awful sacrifices of these men that the assertion has actually been made that, for all the aggregate of gold taken out of the ground, there has been expended an even greater amount in mining, milling and searching for the same.

Concerning a commodity of this nature we must think twice before we say that it is likely to become scarce. Is there much chance that production will fall off to any great extent, when thousands of unrewarded laborers are devoting their lives to the search for new mines? There is ample territory of the earth yet to be explored; there are thousands of prospectors who are but too willing to devote their lives to the chance of finding gold. Surely the gambling spirit that causes all this rush and eagerness—the *auri sacra fames* which leads on the fascinating search—will never allow the production of this much sought after metal to materially decline.

A POSSIBLE REVOLUTIONARY DISCOVERY OR INVENTION

When most of us who at present are in mature life received our academic training, we were taught that there were a certain number of indivisible elements into which all matter could ultimately be resolved; and gold, we were taught, was one of these. We were further instructed by our professors and text-books that the attempts of alchemists to transmute the baser metals into gold were, in all probability, destined to failure.

But, owing to certain discoveries and experiments, the voice of science does not speak with its former degree of assurance in regard to the elements or the question whether a so-called elementary substance may be transmuted into another. Various teachings of science—not only those of political economy but of sciences of which chemistry is one which were thought to be in a more advanced stage—have been found to be only relatively true. While in hypnotism, telepathy, and other old sciences with new names, we have been shown that there is a basis of fact in some of the ancient so-called miracles and mysteries. The astrologer, even, is given a hearing; and the alchemist is looked upon with more charity than formerly.

For the latest teachings of those who have most recently and thoroughly examined into the nature of the elements is that there appears to be a relationship between them. Sir William Crookes, for instance, has advocated the theory that all matter is fundamentally the same; and the latest discoveries, as far as they go, tend to confirm the idea of the ancient alchemist that discoveries may

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be made whereby the metals may be transmuted—that, for instance, the baser metals may be transmuted into gold.

In the discoveries and inventions which have so improved the course of industry in recent years, we have some which might be called revolutionary in their nature—some which have come so suddenly that they have required an almost complete re-adjustment of certain industries. For instance, the Bessemer process for producing steel has entirely changed the status of the steel industry.

If revolutionary improvements in the production of gold should come, every industry would be affected through changes of price. The cyanide process and the other improvements have resulted in the most sweeping changes in the method of gold production. But discoveries more revolutionary than the cyanide process may be awaiting us.

It is a custom of scientists, especially in their more popular writings, to entertain the people with predictions or imaginings of the wonders which they are likely to accomplish. For instance, we have a recent magazine article in which the possibilities of gold production are dwelt upon and the suggestion made that science might soon be able to show a way in which gold might be transmuted from baser substances and thus produced so cheaply that it could be used for rifle balls, for which purpose, it was declared, that it was eminently adapted. While such predictions may possibly come true; and while more wonderful things, even now, can be placed to the credit of science, yet there is little probability that such discoveries will be made. And we must dismiss these speculations as the after-dinner talk of a celebrated scientist in a popular magazine rather than predictions of probabilities.

Such discoveries are possible, but not probable. The gold standard, after all, has many strong points in its favor. Chevalier told the economists of his generation that gold production was so great that its value could not be maintained. The present generation was told but a few years ago that gold was too valuable to serve as a standard. Now we are being told that it is likely to become too cheap. The value of gold, although it is not absolutely immovable, as is popularly supposed, is yet so stable, as compared with other commodities, that those who seek to discredit it, are finding the undertaking difficult.

SUMMARY OF THE CHAPTER

In this chapter I have put together the different forces which augment the effects of increased gold production. Abnormal speculation and credit are the greatest of these, but other important influences are found in our modern commercial development, in the melting of ornaments and plate, in the decreasing proportion of gold used in the arts, in the fact that gold is often a by-product, in the thirst for gold, and in a possible revolutionary discovery or invention.

The attempt has been made merely to mention the considerations which bear most directly upon the situation to-day. War, for instance, has often played an important part in destroying commodities and making it difficult to produce them, and hence in raising prices. Great disasters, such as earth-quakes, fires, and crop failures, are likely to destroy more of other property than they do of gold, and so to alter the relative abundance of the commodity, gold, as compared with other commodities. But these and other phases of this question have not been dwelt upon merely because they do not bear especially upon the present price situation.

I shall now pass to the consideration of various influences which tend, not to augment, but to counteract the effects of increased gold production; and which so strengthen the stability of the value of the standard that any new process for producing gold must be revolutionary indeed in order that it may effect any serious depreciation in the value of the precious metal.

CHAPTER V

COUNTERACTING INFLUENCES

THE INCREASED FACILITY IN PRODUCING COMMODITIES

PRICES with us are simply the value of commodities expressed in terms of gold. When a person sells a commodity he receives for it gold or something which has the same value as gold; for, where there is absolute convertibility, the exchange value of all the money must be the same as the standard. Hence it is obvious that one of the ways in which prices may be raised is by the increased facility in producing gold.

On the other hand increased facility in producing other commodities has a tendency to lower prices. Reference has been made to the fact, that increased facility in producing commodities in general has resulted in making the advance in prices uneven, and that some articles have as a result of cheapened production, declined in price. It remains now to discuss the effect of widespread improvements in producing commodities.

These improvements cannot fail to have a tendency to put down prices; and if they are important enough and are not counteracted by some other force, they will cause a decline. In order to understand this is necessary to keep in mind the important fact that the value of gold is determined the same as that of any other commodity, namely—by its supply and demand. In the words of Horace White:—"We should dismiss from our minds the thought that new supplies of gold cause prices to advance by any occult or magical process, or otherwise than through the demand and supply of goods in the market. Many persons argue as though the producers throughout the world, seeing or hearing of a great output of gold in South Africa and in the Klondike and elsewhere, raise the prices of their products accordingly. Of course, no such thing happens."[32]

In the recent work entitled Increasing Gold Supply, by Thomas Gibson and others, Byron W. Holt contributes an article in which he says:—"The best thought of the best economists is reaching the conclusion that the cost of producing gold determines, or tends to determine, the exchange value of gold with other commodities, just as the cost of producing other commodities determines their exchange value with each other."[33]

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[32] Moody's Magazine, December, 1905.

[33] p. 9.

The value of any commodity is determined by finding what it will exchange for. To be accurate, if we wished to ascertain the value of a ton of iron, for instance, we would construct a table or system of index numbers showing what quantities of wheat, corn, silver, copper, lumber, etc., could exchange for a ton of iron. But as a matter of fact we do not do this. It is the only way which would appear to be accurate, and yet the inquiry would be so complicated that much inaccuracy would result. What we do, however, is simply to find how much gold a ton of iron will exchange for. This gives us the price of the iron or its value as expressed in terms of gold.

To determine the value of gold we are precluded from using the short cut above mentioned. It does not add to our information if we state the value of gold in terms of gold. Hence we fall back upon an extremely inconvenient and laborious method, but one which, as above stated, is the most accurate. Index numbers are constructed showing prices of different commodities, or, in other words, how much gold each of them will exchange for. These prices are averaged; and from this average we get some indication of the value of gold; and, by comparing index numbers for different periods, we are able to note changes in the value of the standard.

The value of gold may be varied from the gold side of the price ratio by any cause, for instance, which increases or decreases its cost of production. And its value may also be varied from the goods side of the price ratio by any cause, among others, which increases or decreases the cost of production of any of the other commodities. Considering the value of gold, then, from the goods side of the price ratio we have to note that of recent years especially there have been important improvements in the production of nearly all commodities, and that this tendency has had the most important effects upon the value of gold. In the period from 1873 to 1897 it was the controlling influence; but it is present in all modern times. As a result, the exchange value of gold has been maintained at a figure much higher than it would otherwise have been simply by the aggregate of influences which, affecting commodities separately, lower their cost of production.

Prices are at all times the resultant of a great contest between two principal opposing forces, namely,—the facility of producing gold and the facility for producing other commodities. Each of these two opposing forces has numerous and important allies. And the strength and importance of these allies are continually changing; and the strength and importance of the two great opposing forces are continually changing. In this great battle (not the battle of the standards) but the battle between the standard and other commodities, we have the center of this entire question. The principal element in determining prices therefore is the relative facility in producing commodities and of producing the standard.

In this industrial age we seldom note any event that can do more than cause the production of gold to fall somewhat from a previous high level. The production is not likely to decline to such a point as to cause any lessening in the stocks of gold actually in sight.

In the same way a period of hard times may cause some factories to close; and in other ways cut short the production of commodities. But one of the results of hard times is to stimulate inventive skill and so make the production of commodities cheaper; and it is frequently the case that even before the shock to confidence which ushered in the trade depression is over, the demand is increased for the cheaper commodities and production is again greater than before.

Hence in these modern times the metaphor of a contest—or perhaps better of a race—describes the course of prices. The production of gold and of other commodities are moving in the same direction. The important question is,—Which is moving the more rapidly? According to Adam Smith's criterion of the labor value of commodities, both are being cheapened as compared with previous times. The question is a relative one and requires the careful consideration of all the elements entering into the contest.

THE LAW OF DIMINISHING RETURNS

Manufactured commodities can usually be produced with greater and greater facility as we increase the size of the plant and enlarge the output. But in regard to agriculture and mining the conditions are quite different. "The law of diminishing returns," says Professor Clark, "applies to mining as well as to agriculture. The more silver you want, the deeper you must dig for it, and the more refractory ores you must smelt. The transmuting of a raw metal into finished articles becomes a cheaper and cheaper process; but the extracting of the metal itself becomes dearer. A larger and larger fraction of the labor that is spent in making wares of silver, of gold, of copper, or of tin, must be spent in getting the crude material out of the earth. There are improvements in mining, as there are in other industries; but in spite of them, the continual working of more difficult mines and of more difficult ores makes the getting of the crude material, in the long run, relatively costly."[34]

In estimating the general trend of values which affect the prices of commodities over long periods of time this law of diminishing returns is of the highest importance. Yet while agriculture and mining are both in the same class—that of extractive industries—mining appears to yield more readily to modern invention than does agriculture. Perhaps the best example to illustrate this tendency is the well-known account given by Adam Smith of the rents reserved in college leases, a portion of the rent being payable in corn and a portion in money. The following is from the author of the Wealth of Nations:—"The money arising from this corn rent, though originally but a third of the whole, is in the present times, according to Doctor Blackstone, commonly near double of what arises from the other two thirds. The old money rents of colleges must, according to this account, have sunk almost to a fourth part of their ancient value; or are worth little more than a fourth part of the corn which they were formerly worth. But since the reign of Philip and Mary the denomination of the English coin has undergone little or no alteration, and the same number of pounds, shillings and pence have contained very nearly the same quantity of pure silver. This degredation, therefore, in the value of the money rents of colleges, has arisen altogether from the degredation in the value of silver."[35]

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[34] Political Science Quarterly, June, 1896.

It would appear from this instance and from others that might be gathered from the history of prices that the production of the metals is not as closely governed by the law of diminishing returns as that of agricultural products. As an exception, too, in the price history of agriculture I might refer to the period from 1873 to 1897 in which, owing to the cheapening of transportation, the agricultural products of every part of the world were brought nearer in a business way to the great centers of population and so greatly lessened in cost.

As regards the gold mining industry at the present time, we are in the midst of a period in which, owing to the extraordinary inventions and improvements in production, mentioned above, the mining of that metal has been greatly furthered. But we should not allow the industrial condition which may happen to prevail at a particular time in a particular industry to obscure our vision of the general tendencies of economics. Near the conclusion of the recent book entitled

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[35] Wealth of Nations, Book I, Chapter V.

The World's Gold, by L. De Launay, there is a broadminded resume of the general tendencies of gold mining. I quote from the translation of O. C. Williams, p. 241:

"Gold can never absolutely fail, it is only exposed to a rise in value, since the earth's crust contains much more than the human race could use."

"To sum up, if gold cannot really fail, yet we must look forward, in a more or less distant future and independently of previous oscillations, to a probable increase in its cost of production; for, as time goes on, the ores which are found and treated will be poorer and, under similar conditions of treatment, the extraction will be more expensive. To extract a sufficient quantity of gold it will be necessary to make a profit, and, in consequence, if the gold industry has not sufficiently improved, a rise in gold must take place."

The law of diminishing returns is one of the most important in the science of political economy. And it must be noted and agreed to by all that the industry of mining belongs to that class in which this law is most readily recognized.

RATIO OF NEW SUPPLIES TO THE STOCK OF GOLD

Gold is a commodity, and it fluctuates in value according to its demand and supply. But while we must not lose sight of the fact that there is nothing mysterious about gold, yet it has certain peculiarities which make it among the most stable in value of commodities and most suitable as a standard of value. It may be lost through abrasion or otherwise; but it differs from other commodities in that its loss is so slow. Food, clothing, and most commodities are either soon decayed or wear out; and there is a continuous demand to replace them. But gold is, relatively speaking, indestructible. The supply remains year after year to be used over and over again. Gold is thrown repeatedly into the melting pot and issues, now as articles of ornament or use, now as coined money. It is no doubt true that some of the gold in use to-day was above ground among the ancients and may have been in the melting pot a number of times in the successive centuries.

The supply of gold consists primarily of all the mass of the precious metal which has been stored up during the world's previous history. When there is a new influx from the mines, it merely augments the ancient supply, which has been continually added to from the earliest times. Each addition to the supply, however, after it has had its price effect, tends to make the value more stable as it takes its place in the permanent stock.

And each subsequent increment of a given amount is a less and less percentage of it, so, in the latter part of a great influx of gold, the effects of additions grow smaller and smaller.

Professor Jevons is among those who lay great emphasis upon this fact. For instance, in his Investigations in Currency and Finance, page 64, he says:

"Writers have usually treated the fall in the value of gold as if it were a remote event that would happen suddenly *after* the accumulations have become great. Chevalier's theory about the *parachute* has contributed greatly to nourish and support this notion. Nothing, however, can be more mistaken. The most sudden fall must occur at first, and the value of gold will fall more and more slowly as time gets on, and the total accumulations of gold grow. This is a simple consequence of the fact that gold is chiefly used as currency, so that its value varies nearly inversely as the total quantity in use. Let us take the estimate of Tooke and Newmarch, and suppose that the quantity of gold in use at the end of the year 1848 was 560 pounds sterling; let us further suppose 20 millions to be the subsequent annual excess of supply over consumption. Then, at the end of the first year 580 millions were in use, and the value of gold would be reduced in the ratio of

580 : 560; at the end of two years 600 millions were in use, and the value of gold would be reduced in the ratio of 600 : 560, and so on."

In the historical review attention was called to the fact that after the discovery of America and the increased production of silver from the mines of Potosi and elsewhere, there was a great rise in prices. But, though the stock of the precious metals was continually increasing, yet at about 1640 the rise in prices had stopped.

One of the reasons why prices refused to advance at that time must have been that the additions to the enormous stocks then accumulated were relatively too small to produce that effect.

In the price movements which followed the increased production from the mines of California and Australia in the middle of the nineteenth century, the new supplies of gold were so large in comparison with the stock of gold at that time that prices were powerfully affected. But we find the most important advance in the first decade after the new gold began coming upon the market.

But though the production of gold kept up at a rate much in excess of anything known previous to 1850; yet, as the world knows, from 1873 to 1897 there was a downward tendency in prices, which was caused in part by the fact that the stock of gold had greatly increased, and the new supplies, although large, were a smaller and smaller percentage of the stock on hand.

In the present era of enormous production of gold we have had the first flush of the advance in prices. Professor Norton, for instance, computes that between the low point in prices in 1897 and November 1st, 1906, there was a rise of about forty per cent.[36] But the stock of gold has greatly increased because of these very additions. Every increment is now added to a stock greater than any known in the previous history of the world. When we note from past history how each advance in prices has halted before there was a material decline in the production of the precious metals, we see the importance of the tendency just discussed. It must be given great weight in making any prediction for prices in the future.

HIGH PRICES REQUIRE MORE GOLD TO TRANSACT BUSINESS

There is another way in which increased supplies of gold tend to counteract their own effects after production has been large for some time. The increased supplies make higher prices; and when prices are higher the amount of gold used as a medium of exchange is increased pro tanto. And also when the amount of representative money is increased, the tendency is to put more gold in the reserves in order to insure its convertibility.

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[36] Yale Review, November, 1906.

For instance, let us suppose a pound of some commodity to be selling for $10.00, and then a rise in price of fifty per cent. After this rise, the purchaser must pay $15.00 instead of $10.00 as before. Assuming all commodities to have had a similar average advance, it is readily seen that business would be done in higher figures, and that more money would be required in circulation. That part of the new money which was not standard money would not necessarily require any more gold reserve; but, in the case of some representative money a proportionate reserve is required by law to insure its immediate convertibility, and in the case of other kinds where the issue of representative money is largely increased, the tendency is to enact laws requiring additional reserves in gold. In a currency such as that of this country in which a given gold reserve may be used to maintain the convertibility of a certain kind of representative money which is itself used to maintain the convertibility of another kind, it is difficult to speak with exactness. Yet the general fact is plain that convertibility into gold must be maintained by a reserve of gold at some point in the monetary system. And, when new issues of paper are made, those who issue them are likely, either voluntarily or by legal compulsion, to increase the reserves of gold.

THE EVOLUTION OF MODERN COMMERCE AND PROSPERITY

In noting the wonderful increase in the use of substitutes for money and the numerous ways in which gold has been economized, it has escaped the observation of some that *pari passu* with this development, there has gone on a demand for money itself; and, that the figures of the amount of gold and other money in circulation show a remarkable rise as compared with former years.

This increase in circulation, especially that of gold, has seemed an exceedingly strange monetary phenomenon. Hoarding can hardly account for all that has disappeared. In this connection Professor Falkner justly observes in the Forum for August, 1899: "It will hardly be credited that the intelligent American people, ever keen to make a profit, have put away over one hundred million dollars of gold, relinquishing all hope of interest upon this capital."

This tendency to use actual money in business is not due to persons who have concluded to give up having a bank account; and who therefore betake themselves to the use of gold instead of checks. On the contrary there are few who thus take a step backward in their financial evolution. And the use of credit substitutes for money was never increasing as it is to-day. But the increase in the use of gold and of money convertible into gold is due to a different class of persons in an entirely different stage of their financial evolution. It is a perfectly legitimate demand, it comes naturally in evolution, and is likely to increase enormously in the future.

The progress from barter is a gradual one; and it is by no means completed even in the most advanced communities. We have only to get away from the financially developed portions of our cities and towns and be among the people whose development has not been specialized along financial lines, to realize that, after all, the majority of mankind are not feverishly engaged in making numerous exchanges and in transferring credits from one to the other. There are villages and rural communities to-day in which the commercial customs approximate in many respects those of our grandfathers.

It is true that, nowadays, there is no part of the country where all the supplies of a family are produced on the homestead. The advent of railroads, the division of labor, and new methods of distributing commodities, have penetrated to some extent even to the most remote hamlet.

But, nevertheless, most of the business in many communities in this country is done by barter and payments in kind. The farmer in many cases still brings his produce to the village store and receives in exchange the goods he needs from the storekeeper. In many cases he pays his laborers in kind; and there are still remote districts where the inhabitants supply almost all their wants from their own household industry.

There is an important progress from this condition; and there have been great changes in recent years, but the number of people involved is so large that the continual change has the most important effects. When we realize that there are millions of people who heretofore made scarcely any transactions with money who now make many exchanges in it, we see at once the importance of this progressive demand for gold—especially, when it is recollected that with this class of persons gold is preferred to any other form of currency.

The increase of prosperity which goes on *pari passu* with this change in commercial customs is enough by itself to increase the demand for gold. Obviously, if people buy more pianos, more clothing, and more food, they must carry in their pockets, or have ready, a larger stock of money from which to make their purchases. Below we have the figures showing the steady increase in the per capita circulation of money in the United States since 1850:

1850....	$12.02	1870....	$17.50	1890....	$22.82
1851....	13.76	1871....	18.10	1891....	23.42
1852....	14.56	1872....	18.19	1892....	24.56
1853....	15.70	1873....	18.04	1893....	24.03
1854....	16.10	1874....	18.13	1894....	24.52
1855....	15.34	1875....	17.16	1895....	23.20
1856....	15.16	1876....	16.12	1896....	21.41
1857....	15.81	1877....	15.58	1897....	22.87
1858....	13.74	1878....	15.32	1898....	25.15
1859....	14.35	1879....	16.75	1899....	25.58
1860....	13.85	1880....	19.41	1900....	26.94
1861....	13.98	1881....	21.71	1901....	27.98
1862....	10.23	1882....	22.37	1902....	28.43
1863....	17.84	1883....	22.91	1903....	29.42
1864....	19.67	1884....	22.65	1904....	30.77
1865....	20.57	1885....	23.02	1905....	31.08
1866....	18.99	1886....	21.82	1906....	32.32
1867....	18.28	1887....	22.45	1907....	32.22
1868....	18.39	1888....	22.88	1908....	34.81
1869....	17.60	1889....	22.52		

Whatever the proportion which our financiers and rulers consider necessary in order to maintain the immediate convertibility of the currency, it is likely that with any increase in the money of the country more gold will, sooner or later, be added to the reserves. The proportion of the reserves to currency may be small; nevertheless, gold to use as reserves for note issues and deposit currency constitutes one source of demand for the metal.

The prosperity and commercial development of the people have two effects in a financial way. One of these is to increase the use of substitutes for gold in one class of the people; another, is to make a greater demand for the gold itself in another class. Thus both gold and its substitutes are being used more and more every year.

The different economic units may be divided for purposes of convenience into three classes:—

The people who have very small incomes, who make few purchases, and whose transactions are mostly in barter, might be designated as Class C.

The people who have come out of Class C, who have a fair income and make most of their business transactions with gold or other money and who keep some of it on hand to make purchases with, might be called Class B.

Those who have a considerable income and those who follow their example by keeping a bank account and doing most of their exchanges through a bank might be called Class A.

These classes insensibly shade into one another; but, in a rough way, this classification indicates different steps in the financial evolution of the people. We are always noticing how the people are availing themselves of the convenience of the banks. In other words, we notice how they are passing from Class B to Class A. But often we fail to fully realize that a great host is passing from Class C to Class B. The first step up from poverty does not result in economizing money, but rather in accumulating enough to tide over passing emergencies.

The circulation of money among these people who have but newly arrived at financial independence is not rapid. The amount of money-work accomplished by each coin is small. Indeed, a kind of semi-hoarding is practiced. Sums of money are laid aside; and considerable time is likely to elapse before the emergency may arise of sufficient importance to warrant bringing it out and spending it. And so an amount of gold, large in the aggregate, is continually held in this kind of sluggish circulation, or semi-hoarding. Of course all of the money withheld from active circulation in this way is not gold. But a proportion of it is; and gold is the favorite with that class of people.

There has been much speculation among financial writers as to what has become of all the gold coined and put in circulation. The favorite explanation is that it has been accumulated by immigrants and taken back with them to Europe. The only fault to be found with this explanation is that it is not inclusive enough. Immigrants are not the only persons who have become prosperous and are able to accumulate gold or other property. There are, for instance, wage-working Americans who have accumulated money in recent years. And there are American farmers and business men who carry with them or have in the till and ready for use, much more money than ten years ago, for instance. The Americans and the immigrants who stay here and who accumulate money with which to carry on their business form the more important element in the demand for gold and other currency. The actual gold used is not the only criterion, as stated above, of the amount of metal required; for when paper money is used the tendency is to increase the reserves to a greater or less extent.

Under other headings I shall attempt to account for other sources of drain on the supplies of the money metal. But here we have a drain which is of great importance on account of the large number of people involved. Let it once be admitted that the people passing from the moneyless class to the middle class do not, as a rule, avail themselves for some years of banking privileges; and it follows on account of the increase in numbers of this class that they must directly and indirectly make a great demand for gold.

HOARDING

The use of gold in hoarding is one of the most ancient uses to which it has been put. Indeed, this species of demand for gold was, relatively speaking, more important in ancient and mediæval times than at present. Some of the hoards among the ancients were so great that when they were dispersed the gold thus set free created an addition to the current supplies sufficient to raise prices for the time in the vicinity.

Among modern peoples hoarding is perhaps more important than is currently supposed, especially among that class of people spoken of in the last heading who have but recently arrived at financial independence. When hoarding is practiced, gold being the only standard metal and having a peculiar attraction, is usually seized upon as most fit for the purpose. It is probable that the existing hoards account for some of the gold which has so mysteriously disappeared in recent years. As the hoards are usually kept a secret, it is impossible to tell their aggregate or exactly what percentage of them is lost or destroyed.

During a period of declining prices when the value of gold is relatively advancing in regard to other commodities, a greater tendency to hoard is usually noted. This is especially the case if there be a political agitation looking toward the abandonment of the gold standard. In 1896 the agitation that took place doubtless helped in a greater or lesser degree to increase the value of gold. And the extensive hoarding at that time doubtless contributed to take care of the new gold from the mines. It accounts in part for the fact that the new supplies had such a small effect for the first few years after they began coming upon the market.

But when the value of gold is declining and the prices of other commodities advancing, there is at least one incentive for hoarding removed; for the hoarder is likely to find his gold of less purchasing power when he gets ready to use it than when he first laid it aside.

However, the increased well-being and prosperity among the people has its effect upon the hoarding instinct much the same as upon the desire for more currency. Thus, while there are those who are learning the art of investing their money where it will pay profit, there are at the same time great numbers of people just arriving at financial prosperity who do not understand the advantages of investment and who cling to their gold with that peculiar fascination which it especially holds upon people who were but recently poor. The hoards of these people may be small individually; but they are large in the aggregate. This hoarding instinct must be taken account of, even in the twentieth century, as one of the demands which is ever calling for gold.

INCREASE OF POPULATION

Population is increasing the world over. There are more mouths to fill—more backs to clothe, than ever before. All of these people must have money with which to transact business; and more or less of that money must be gold.

In the historical review the matter of population was not mentioned, because there was no time when a change in population could be pointed to as having the preponderating influence in furthering or retarding the effect of gold production on prices. The increase of population is steady. And in modern times it is not materially interrupted by wars, plagues or famines.

There are times, however, in which the effects appear to accumulate and so to exert an especially great influence. For instance, the period between the date of the Battle of Waterloo and the middle of the last century was one of quite general peace, and population greatly increased. The demand for gold at this period was greater than the supply of that metal and resulted in lower prices. In the historical review above, the decreased supply of gold due to the closing of the South American mines appeared to the writer to be the distinguishing feature of that epoch. But the increase of population during this long period of peace might perhaps be mentioned as the second important influence in accounting for the decline in prices.

The effects of increased population, however, are usually difficult to trace for the reasons above mentioned. But it must be remembered that in these modern times it is an ever present factor. And, by bearing it in mind, we can better understand why it is that an enormous increase of gold from the mines has had such a small effect upon prices.

INCREASED BANK AND TREASURY RESERVES

The modern method by which most of our exchanges are effected by substitutes for gold has been heretofore commented upon. Yet it must be admitted that there are eminent financiers who believe that the amount of uncovered money substitutes is too large, and who ascribe most of our financial ills to what they call the smallness of our gold reserve. It is said that our monetary system is an inverted pyramid, and that we cannot stand such a large base upon such a small apex. Or, to use the illustration of Adam Smith, this wagon way through the air appears to some, a dangerous highway.

Unsound finance cannot be too strongly deprecated; and, for instance, the financial conditions which led to the Specie Circular should never be allowed to return. Those conditions, however, were not wholly caused by the lack of convertibility of the bank notes; but there were a variety of unsound banking practices peculiar to the time and the unsettled state of the country.

Such remedies as the Specie Circular are heroic and accomplish the immediate end in view. But if all our exchanges must be made in gold it will be noticed at the outset that the supply of that metal is totally inadequate to perform the function required of it.

However, there are few who advocate the entire abolition of representative money. But the financial reformers referred to, believe that our reserves of the standard money metal should be greatly increased. For instance, Maurice L. Muhleman, Ex-Deputy Assistant Treasurer, expresses himself as follows:—

"Regarding the adaptation and adjustment of our artificial or conventional methods to the changing natural conditions as a primary obligation of the civilized state, no utilization of the added gold supply to the promotion of the well-being of the race would be more rational than its employment in fortifying the reserves of financial institutions. No one who has given the subject more than merely superficial consideration will question the assertion that such strengthening is necessary if we would protect the credit structure adequately against the periodic dangers to which it is exposed; dangers which so frequently bring about disasters, the effects of which are felt for a decade, during which a very substantial portion of the race is subjected to misery, inevitably retarding the progress of civilization."

"Here, then, is a broad field for the employment of the increasing gold product, sufficient to absorb the available output for a decade or more, which governments should recognize."[37]

England being a country which has small reserves in proportion to the business which it does, the question is assuming the more acute form there now; and a committee of the London Chamber of Commerce has lately recommended a plan whereby the Bank of England would not only reduce its fiduciary issues and increase the reserves which it carries against its notes, but a Secondary Reserve for the chief banks of the kingdom would be established in the Bullion Department,—which measures, it is hoped, will ultimately result in increasing the total of gold reserve carried by the British banks.

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[37] Moody's Magazine, December, 1905.

As to how much gold should be carried as reserve in the financial institutions of the world there is much difference of opinion. The reserve of gold should be so large that all possible contingencies should be provided for. The financiers who seek to maintain the strength of our monetary system should be applauded. The financial reformers have had their way to some extent in the past; and reserves have been increased. As to the future, they are quite likely to compel a further increase. But it is unlikely that any such increase should be accomplished as to absorb any very large proportion of the new gold supplies.

OPENING NEW COUNTRIES AND REMOTE DISTRICTS

The improved facilities of transportation, the modern colonizing spirit, and the tendency shown by different independent, but heretofore backward countries, to awaken from their long sleep, to change their system of doing business, and come into the modern commercial system with increased use of the modern standard, is resulting in adding greatly to the demand for gold.

At the time of the influx of gold from the American mines in the sixteenth century the state of affairs was quite different. The facilities for communication and transportation at that time were quite poor and many countries were not touched at all by the great influx of the precious metals. Even in countries which at that time might be called commercial, the new supplies of the precious metals were obliged to spend their force upon a few cities and adjacent districts. There were important parts of every country which were not affected at all.

At the present time, however, when communications are being established with the most remote districts and hitherto moribund countries are joining the family of commercial nations, there is a continual demand for gold for circulation and to form reserves to maintain the convertibility of bank notes or paper state issues.

THE ORIENTAL DRAIN

Not only will gold be needed in the nations which are at present commercial and not only will other nations enter the commercial system, but gold will also be needed in large quantities in certain countries which, as far as the modern commercial system is concerned, are as yet in a moribund condition. Nations, there are, of great antiquity and of a high degree of civilization and with a record of high achievement in the arts, but who appear to have stopped in their commercial evolution, who use a great deal of the precious metals, and who refuse obstinately to pass on to the next stage in which gold is economized and credit made to perform most of the functions of a medium of exchange.

Such a country is India. She needs a large quantity of the precious metal both for currency and as a store of value. Speaking of the drain to India and the East, Professor Cairnes was led to say:—"The stream which rises in the gold regions of Australia and California flows through the currencies of the United States and Europe, and, after saturating the trade of these countries finally loses itself in the hoards of China and Hindostan. The tide which comes to light in the sands and rocks of the auriferous regions, disappears in the accumulations of the East."[38]

Professor Jevons is among those who assigned great weight to the Oriental drain. And he held that this demand was one of the influences which prevented a more considerable rise in prices after the Californian and Australian discoveries. He sums up the matter as follows:—"Asia, then, is the great reservoir and sink of the precious metals. It has saved us from a commercial revolution, and taken off our hands many millions of bullion which would be worse than useless here. And from the earliest historical ages it has stood in a similar relation to Europe."[39]

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[38] Fraser's Magazine, January, 1860.

Many events important in financial history have happened since the words were written which have been quoted above. For one thing India has adopted the gold standard. Viewing the subject broadly, however, it still appears that the Oriental drain is highly important, although perhaps not as important relatively as at previous periods.

CHEAP GOLD AND THE STOPPAGE OF MINING AT THE MARGIN

There has been a great cheapening in the production of gold in recent years. Mines which formerly were thought incapable of yielding the precious metal in paying quantities are now operated with profit. The tendency at present is toward the use of low grade ores, owing to the cyanide process and other improvements in separating the metal.

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[39] Journal of the Statistical Society, Vol. 28, p. 307.

Nevertheless, there is an opposite tendency which must have had some effect already and which may play an important part in the production of gold. I refer to the fact that when gold becomes cheap its purchasing power is lessened; and, the price of commodities being high, it costs more and more to work the gold mines. Thus the advancing prices due to a large production of gold set in motion forces which tend to counteract the advance.

For instance, with present prices of labor, food, lumber and steel, it costs more to produce most commodities than it did fifteen years ago, provided of course that other things are equal. The fact that in the case of gold, other things are not equal does not alter the truth of the general statement. As just noted, there have been important improvements in the processes of mining and milling gold, which have more than counterbalanced this tendency. But when gold is cheapened the tendency always exists. It doubtless has neutralized to some extent the effect of the recent cheapening in production, and it may have an increasing effect in the future if prices continue to rise.

GOLD THE SOLE STANDARD

When any commodity is used or consumed it reduces *pro tanto* the supply of that commodity which is pressing upon the market. And when any commodity, as for instance gold, is used as a standard money, it is implied that there must be a reserve of that metal to maintain the convertibility of the representative money, or substitutes for money, which are to be used. That reserve may be very small. It may not be in proportion to increased use of gold substitutes. But yet, if there be convertibility, there must be some reserve. And the fact that gold is the standard implies that this reserve must be kept in gold.

And yet gold was not always the standard. Cattle, tobacco, wampum,—almost every commodity, at one time or another, has been used as money. Finally the standard of value narrowed down to gold and silver in most of the civilized nations of the earth; and that condition obtained for centuries. But, in the lifetime of the present generation, a further change which had been progressing for some time was brought to a climax. The commercial nations, one after another, have adopted gold as the sole standard. This implies that the principal reserves of the banks and treasuries shall be kept in gold; and it takes that much gold off the market where it would otherwise be pressing upon the demand.

A number of economists and statesmen have made much of this fact. But in the heat of political discussion they have no doubt exaggerated its importance. Silver is not the only commodity which has been cast aside as a standard of value. The fact that a commodity has been so used does not imply that it must always be so used. In the progress from barter it is not strange that the standard of value should be narrowed to one metal, which has been found peculiarly suited to exercise that function.

Further, while gold is especially suitable as a standard, silver is better suited to be a medium of exchange for most of the small transactions; and the demand for silver still continues for fractional currency. It is true that the greenbacks of large denomination of the war period were replaced by gold or by other greenbacks or some form of paper money. But the fractional paper currency was replaced, most of it, by silver. The demand for gold to use in bank and treasury reserves may be increasing. But the demand for a money metal to pass from hand to hand is for silver.

We must weigh carefully the facts of this shifting of the demands for the respective money metals. Gold now bears the entire burden of a standard in the principal commercial nations. It has been the standard long enough so that its value has had time to become adjusted to the work that it performs. Its adoption as the standard money metal is now nearly complete. There are few nations remaining to make the change. Gold appears to be abundantly able to bear the added burden; but the demand for it which comes from its being the sole standard must be taken account of in estimating the future course of prices.

SUMMARY OF THE COUNTERACTING INFLUENCES

In the foregoing chapter the attempt has been made to discuss each of the more important of the influences which help to counteract in great part the effects of a period of increased production of gold. The most important was found to be the increasing facility in producing commodities in general which goes on *pari passu* with increased production of gold and which is due to the same causes, namely—progress in civilization and industrial development.

Other important counteracting influences were found in the law of diminishing returns, in the ratio of new supplies to the stock of gold, the evolution of modern commerce and prosperity, the effect of high prices in requiring more gold, hoarding, increase of population, increased bank and treasury reserves, the opening of new countries and remote districts, the Oriental drain, cheap gold and the stoppage of mining at the margin, and in the fact that gold was the sole standard.

It was thought that, by concentrating our minds upon these more important counteracting influences, we would be better able to form an estimate of the future movement of prices than if all the counteracting influences were discussed. As the student delves deeper and deeper into this interesting subject and reviews and re-reviews the different causes which tend to augment the effects of gold production and sets them off against those which tend to counteract its effect; and, as he compares his *a priori* opinions with such *a posteriori* argument as he may gather from history,—he is more and more impressed with the importance of the counteracting influences. He sees what they have done in the history of prices; and he cannot but believe that they will play an important role in the future. The counteracting influences bulk large in making any estimate of the effects of increased gold production on prices.

CONCLUSION

IN the foregoing paper the attempt has been made to give some estimate of the effect of increased gold production in raising prices, and to review some of the qualifying price-making factors. It should be called to mind, however, that the question of prices is an exceedingly extended one. There is no single factor in all the complex of economics which has not a tendency to change in some degree the prices of commodities.

All the factors, however, may be divided into two great classes—those which are to be considered in connection with the demand and supply of gold, and those which are to be considered in connection with the demand and supply of other commodities. At first blush, it might appear that the causes which affect the demand and supply of gold are the only ones germane to the subject. But it was necessary to discuss other causes of change in price in order to separate those which belong to gold only, and to make due allowance for any tendency which might augment the effects of increased gold production and also to those which might counteract such effects.

GENERAL SUMMARY

In the historical proof the attempt was made to show the effect in raising prices at different times of the production of gold as modified by the factors mentioned. After thus showing the manner in which the price-making factors affected the course of history, they were classified into those which tended to augment the effects of increased gold production and those which tended to counteract such effects and discussed seriatim. By way of final summary, may I be permitted to set off these influences one against the other at close range in the hope that the preponderant factors may be more clearly disclosed?

There have been great improvements in producing gold in recent years; but the improvements in producing other commodities are also of great importance. And the law of diminishing returns indicates an ever present tendency to neutralize the effects of the improvements in producing gold.

There has been more gold taken out of the ground in recent years than in any previous period; but the accumulated stocks of that metal are now so large that a given amount of new production forms a smaller percentage of the stocks than formerly. Hence we have found that periods of increased production of the precious metals have been followed by general advances in price; but, for the reason just mentioned and others, we have also found that in the latter part of such a period of increasing production, prices show a tendency to stand still or to decline.

The development of banking facilities and the use of credit, together with improvements in communication and transportation, effect progressive economies in the use of gold; but, in order that the effects of these improvements and facilities may be realized, the people must avail themselves of them. And there are a great many people who formerly had little money or property but who are now adding to the monetary demand for gold, as they are not financially advanced enough to use the modern economies for money.

Illegitimate speculation and abnormal, fictitious credit unite to fan a legitimate advance in prices due to increased production of gold, into an era of great speculative excitement, high prices, and misapplied production. But after such a period of inflation the reaction must come, in which case, prices will go to their legitimate level, or even below it.

We cannot expect any large increase in the demand for gold for use in the arts; and it is on the monetary demand that we must principally rely to use the increased supplies. But gold is still used largely as money; the volume of circulation is increasing; and the very fact that prices are higher and that we do business in higher figures requires more gold to transact a given amount of business. Further, while the amount of reserves required to maintain the convertibility of a given amount of currency is very small, there are those who insist that these reserves should be greatly increased and thus consume the increased gold output.

New countries are being developed and remote districts are being opened up to commerce. But with commerce and business development, come an added demand for commodities with speculation and various price-elevating factors, both good and bad of the modern system.

Certain moribund, but important, nations still refuse to adopt the modern system of economizing the use of gold and still import enormous quantities of the precious metal. But though progress may be slow, yet the world moves; and the principal tendency of financial evolution, after it reaches a certain point of development, is toward the extended use of substitutes for gold.

Gold is often a by-product, and this tends to make it independent of its own cost of production. Then there is a thirst for gold which causes men to search for it and mine it with such eagerness that the cost, all things considered, is greater than the selling price. Thus the production of gold, even at the present day, is partly non-economical. But this very thirst—this very attractiveness—has also an opposite effect from that just mentioned, as it leads many to hoard, which desire can even be traced to financial institutions.

When an increased gold production raises the wages of labor and the prices of commodities, it requires more capital to work mines than formerly and has a tendency to render some mines unprofitable which previously it would pay to work. But, for the present, the continued improvements in mining gold and the cheapening in transportation result in counteracting this tendency.

Every increase in population increases the demand for gold; but when the people live near together they are better able to avail themselves of different financial agencies to economize in the use of a metal.

Several nations which formerly used silver as standard money are now using the single gold standard. But the process of changing from silver to gold is nearly completed. There are few nations yet to change, and the world of commerce has become adapted to the new order of things.

A BALANCING OF TENDENCIES

Thus we find that, despite the financial alarmists of all sorts, there is a remarkable balancing of tendencies—not a tabular standard of value, but a condition where the opposing influences are so various that the interplay of economic forces gives us most of the advantages of such a tabular standard; so that there is more foundation for the popular delusion that the value of gold never changes than might be supposed. But popular beliefs founded on experience must not be allowed to degenerate into superstition. There is nothing mysterious about gold except in men's minds. It is a commodity and has its fluctuations in value governed by its peculiar conditions of supply and demand. It is the most stable in value of commodities; but, from the fact that it is the standard money commodity, its fluctuations have an added importance.

Anything approaching mathematical accuracy in forecasting prices is of course out of the question. The thousands of factors which affect values and the numerous failures of financial prophets who have gone before, would make such an attempt appear foolhardy. Nevertheless, in this age of the careful collection of statistics and the study of economic phenomena, it should be possible to separate the principal underlying causes, and, by devoting our attention to them only, make some estimate in regard to the general course of prices. The only possible price prediction would seem to be the following:

FUTURE PRICES

Owing to the increased production of gold, the prices of commodities are likely to have an important advance from their present level. This advance will be broken by minor surface reactions caused by the alternations of good and bad times and numerous price-making factors. But, in a few years, the exuberance of the advance will be passed; the powerful counteracting influences will assert themselves; and the advance will halt. In the period which will follow it will be necessary for the production of gold to greatly increase from the present average yearly output in order that the upward movement in prices may again assert itself. Failing that, there is likely to ensue a period in which average prices will be nearly stationary being governed by a number of price-making factors the most important of which have been discussed herein.

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